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suggest possible uses as

laminating resins

bonding agents

plasticizers

rubber softeners

polymerizing agents

rubber additives

Send for technical bulletin I-1

Reference to these process patents and a very substantial amount of useful data on the properties and reactivity of Tetrahydro Phthalic Anhydride are given in our Technical Bulletin I-1. We will be pleased to send you a copy without obligation.

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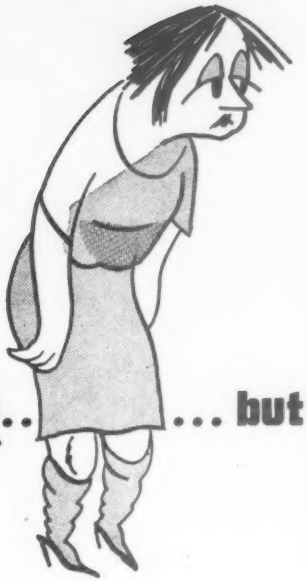
not this..  ... but this

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Formerly PAINT and VARNISH PRODUCTION MANAGER
(Established in 1910 as The Paint and Varnish Record)

VOL. 43 APRIL, 1953 NO. 4

NEXT ISSUE

A interesting article dealing with the behavior of platy mica extender in vinyl primers and vinyl-alkyd paints is scheduled for the May issue. This article is concerned with the usefulness of platy mica extender as a means to enhance the corrosion-resistance of the various vinyl systems studied.

★ FEATURES

★ DEPARTMENTS

Published Monthly by
Powell Magazines, Inc.
Executive and Editorial Offices
855 Ave. of the Americas
New York 1, N. Y.
BRyant 9-0499

JOHN POWELL, *Publisher*
ANTHONY ERRICO, *Editor*
A. L. BENDER
Production Manager
G. J. TEIR
Circulation Manager
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PAINT and VARNISH PRODUCTION is published monthly at Easton, Pa. by Powell Magazines, Inc. John Powell, president; Ira P. MacNair, vice-president and treasurer; Alice L. Lynch, secretary. Entered as second class matter at Post Office at Easton, Pa., Jan. 30th, 1952, under the Act of March 3, 1879. Subscription rates: United States and Possessions, $3.00 a year, $5.00 for two years, $10.00 for five years. Canada, $4.00 a year. Pan American Countries, $4.00 a year. All other countries $8.00. Editorial and business office: 855 Avenue of the Americas, New York 1, N. Y. BR-9-0499.

Editorial Comment

Bright Future for Construction

MANY are wondering what effect will possible cuts in defense spending have on the future of construction. Far from being apprehensive of such a condition, a panel of distinguished authorities at the recent San Francisco convention of the American Society of Civil Engineers took a highly optimistic view of construction for the future. Of particular interest were the remarks of John P. Yates of the Bechtel Corp.

Mr. Yates pointed out that defense construction spending is relatively a small portion of the total security spending, so that if this construction spending does stop, it will not have a marked effect on the total economy. He said: "From the long range aspect there are two important factors favoring a high level of construction activity. First is the tremendous increase in population now being experienced. Schools, homes, community and commercial buildings, utilities and highways all must expand. Even more important will be additional production facilities to supply food and consumer goods.

"The second factor has to do with consumption of our basic natural resources. The President's Materials Policy Commission finds not so much a shortage of resources, but an increase in demand, and a steady increase in the cost of materials. There follows a demand for technological developments, for more efficient extraction of materials — and the use of substitutes for those materials in shortest supply.

"When defense restrictions on critical materials and manpower can be released, retarded programs for schools, streets, highways, institutions and other public works can well accelerate to a point where correcting these deficiencies could alone offset much of the drop in defense construction."

"Construction of arterial and local highways with their structures and bridges is a major phase of public works. Many roads are yet unsurfaced. Most highways are overcrowded and dangerous. Congestion in cities is appalling. The rising demand for highway improvement unquestionably will add a very substantial construction volume as soon as the defense pressure decreases. The outlook for non-governmental or private enterprise construction is bright. In this field, perhaps more than any other, the right atmosphere and a feeling of confidence in the future are prerequisites of expansion. Recent surveys indicate private business will sustain for the next several years a rate of expenditure nearly equal to the present."

The views taken by Mr. Yates are indeed encouraging. With a bright outlook for construction predicted, the paint industry can look forward to a great and steady demand of its many products.

The Liebermann-Storch Test

RECENT work in England seems to indicate that the Liebermann-Storch reaction can be a useful tool in detecting other types of resins other than rosin.

A report by R. Paulson, which appeared in the March issue of the *Journal of Oil & Colour Chemists' Association*, brought up the point that reluctance to use this reaction for the identification of resins other than rosin is in some measure due to the lack of collected information on the colorations produced by all of the common coating resins, and to a lesser degree, to the variety of conditions recommended under which the reaction should be performed. In view of the fact that the range of materials tested was limited, and the conflicting evidence reported in past papers, Mr. Paulson deemed it necessary to make a more complete investigation of this reaction. In his study, he found that care in the finer points of technique would yield consistent and reliable results.

Employing a specified technique and observing initial flash of color and final color, Mr. Paulson made a study of various types of natural and synthetic resins, drying and non-drying oils, fatty acids, waxes, pitches, bitumens, petroleum residues, solvents, plasticizers, soaps, and common metals. Upon completion of the experimental work, he divided the materials into five groups, according to their characteristic coloration, which could serve as a useful guide in detecting the types of resins and raw materials present in our modern coatings.

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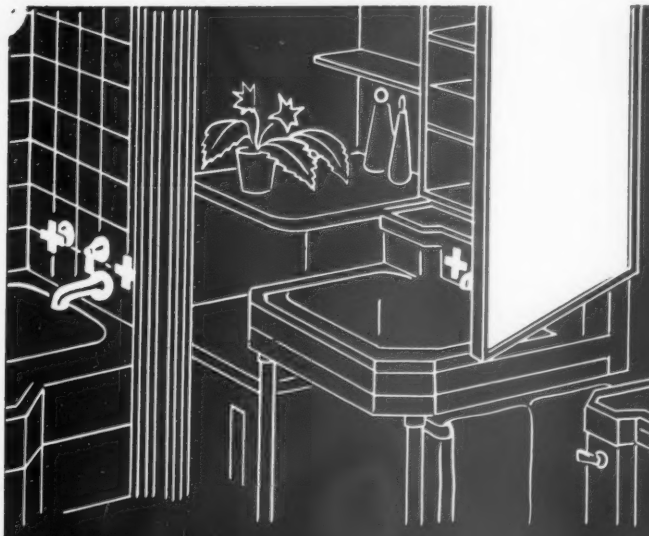

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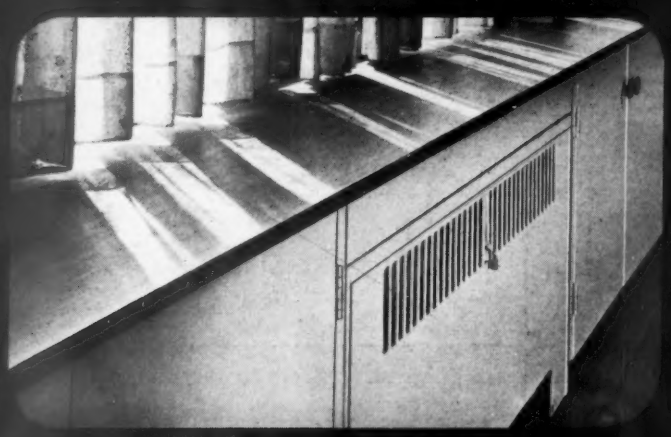

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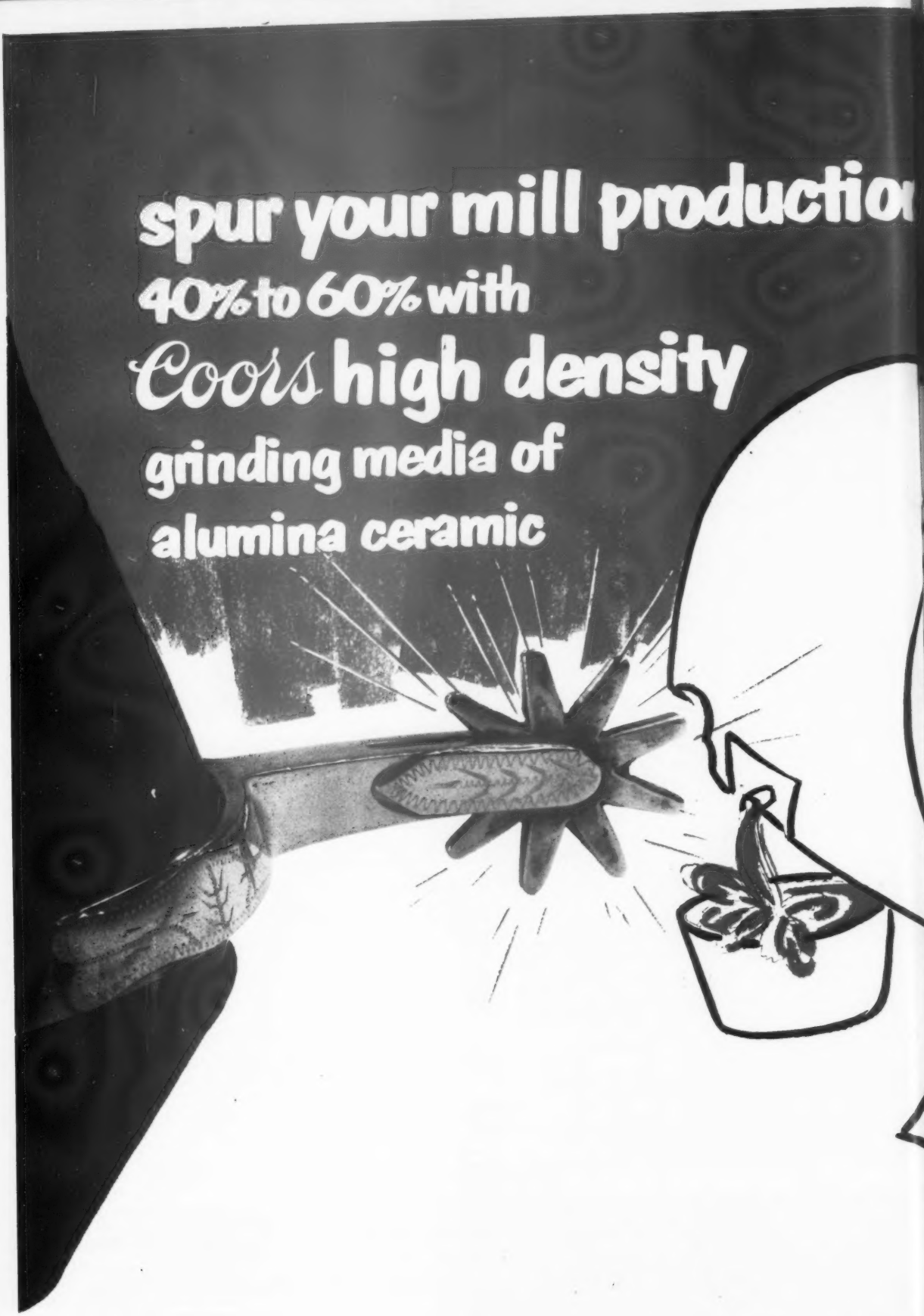
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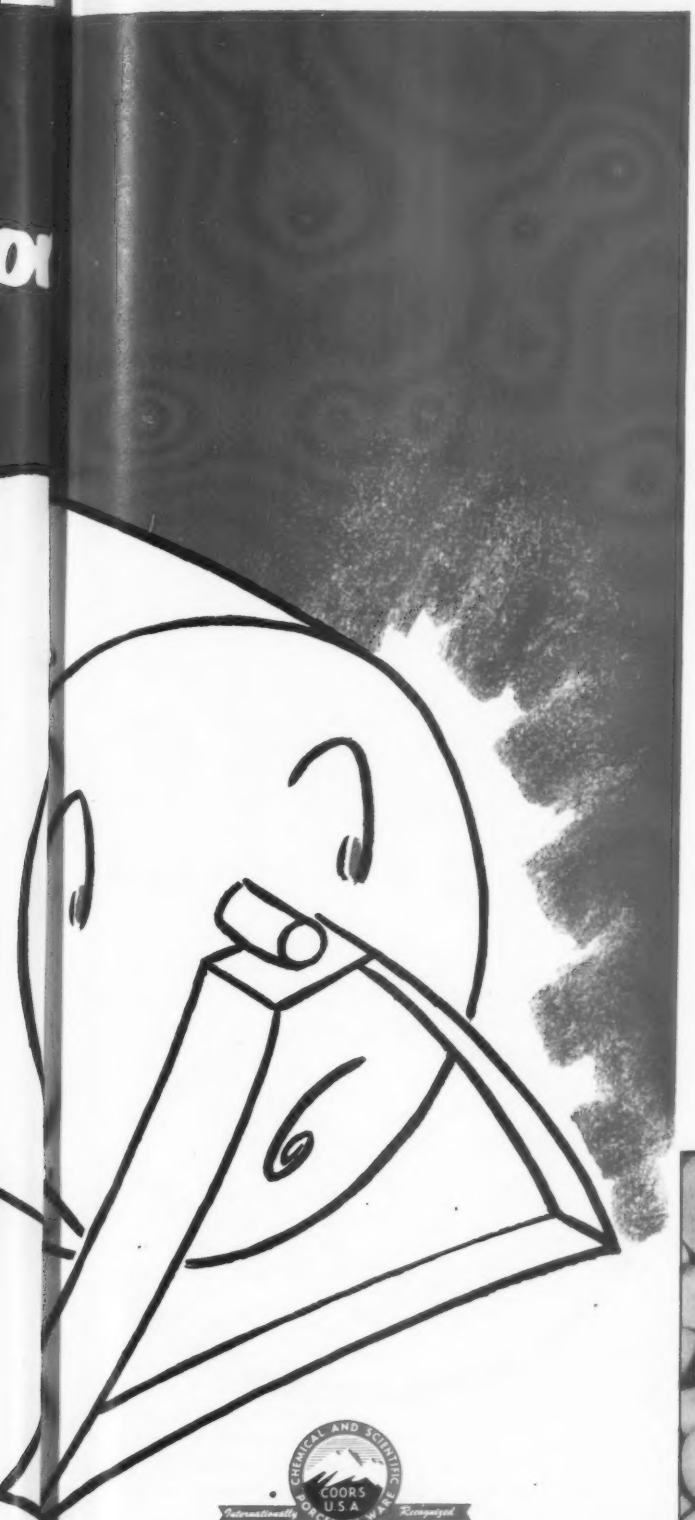

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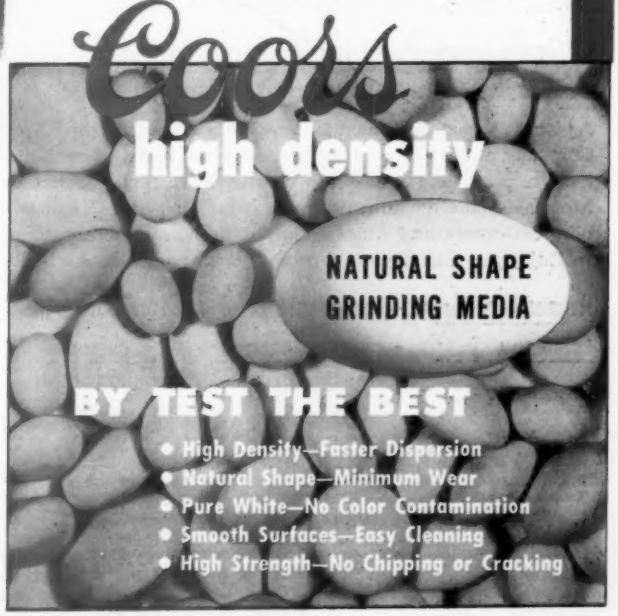

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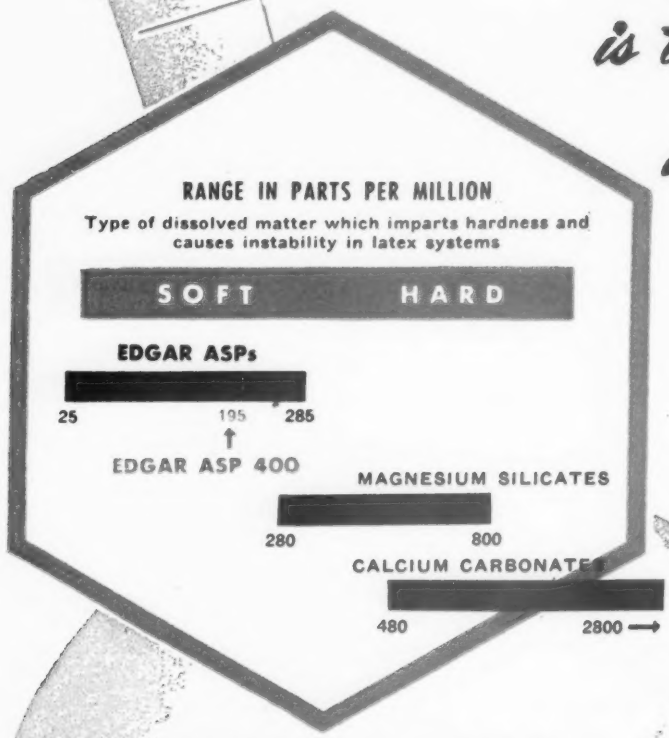

TEST PROCEDURE: 20 grams of pigment was shaken thoroughly with 500 ml of distilled water and the pigment allowed to settle. The "hardness" of a sample of the clear supernatant water was then determined by titration with a standard organic sequestering compound using Eriochrome Black T as an indicator. The results are shown above.

WHY THIS TEST WAS RUN: It is well known that a sufficient concentration of the type of ions which impart "hardness" to water is likely to cause instability of a latex system. Latex manufacturers caution against the use of hard water in formulation. This test was run to show an indication of the "hardness" of various pigments.

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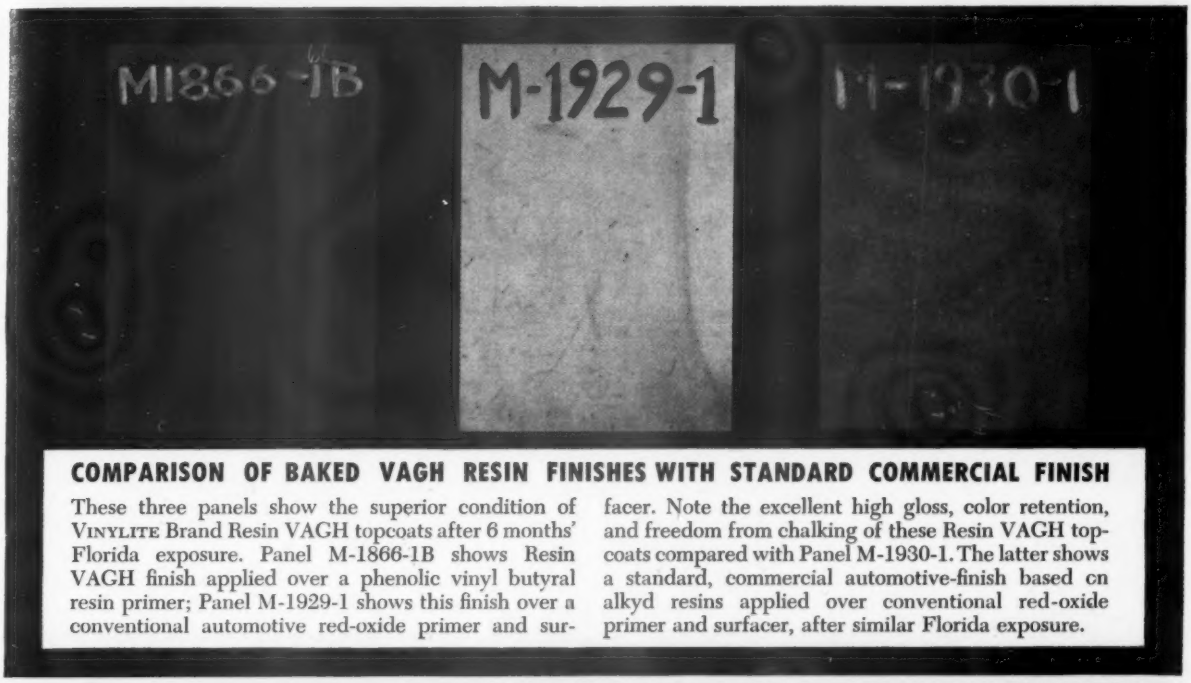

COMPARISON OF BAKED VAGH RESIN FINISHES WITH STANDARD COMMERCIAL FINISH

These three panels show the superior condition of VINYLITE Brand Resin VAGH topcoats after 6 months' Florida exposure. Panel M-1866-1B shows Resin VAGH finish applied over a phenolic vinyl butyral resin primer; Panel M-1929-1 shows this finish over a conventional automotive red-oxide primer and surfacer. Note the excellent high gloss, color retention, and freedom from chalking of these Resin VAGH topcoats compared with Panel M-1930-1. The latter shows a standard, commercial automotive-finish based on alkyd resins applied over conventional red-oxide primer and surfacer, after similar Florida exposure.

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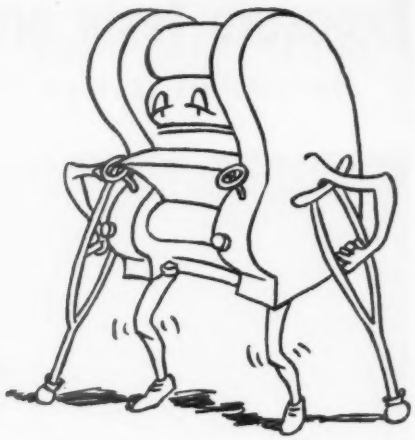

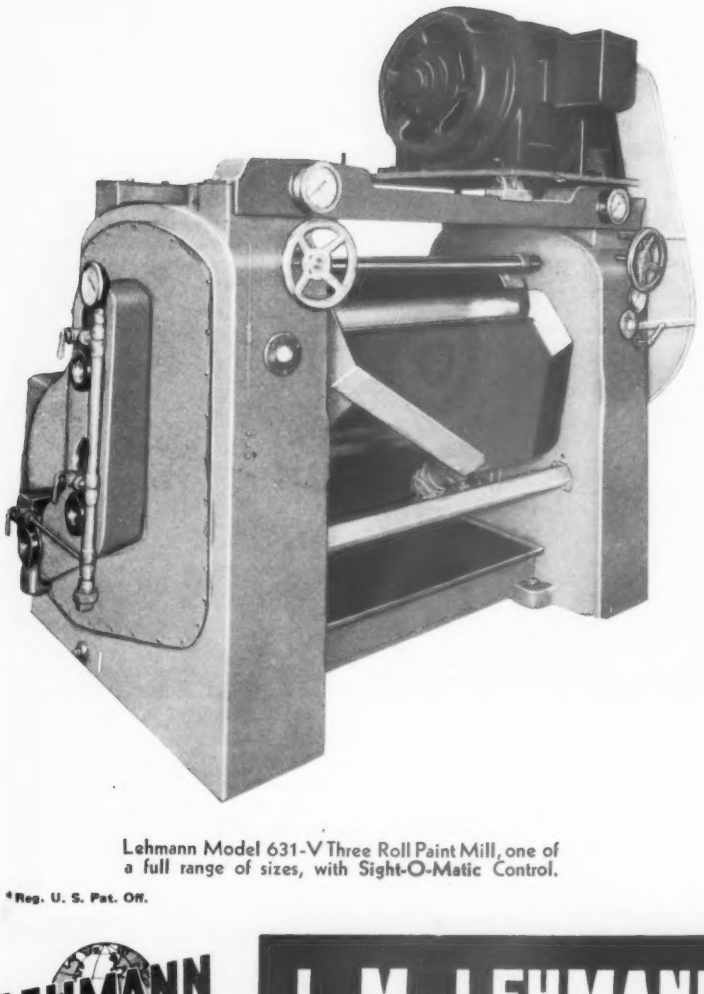

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Methyl Glucoside ---New Polyol

By J. P. GIBBONS
L. R. MORROW
R. L. CLARK

MELLON INSTITUTE

SCARCELY known to the paint and varnish technologist 15 years ago, synthetic polyhydric alcohols are now a vital part of the protective coatings industry. And for good reasons: War time and emergency shortages of imported natural oils and resins, and an advancing technology add up to the development of synthetic drying oils. . . .upgraded semi-drying oils. . . .tall oil esters . . . .superior alkyd resins. . . .improved rosin esters. . . .and specialty plasticizers, emulsifiers, and waxes. All of these products rely on polyhydric alcohols — chiefly glycerol, pentaerythritol, and sorbitol.

With recent advances in oil splitting processes, drying oil fatty acids have been gaining in commercial importance. Faster and harder drying oils are now prepared synthetically by re-esterifying these fatty acids with polyols having more hydroxyl groups than glycerol. Semi-drying or soft drying oils are made more useful by reacting the natural triglycerides with a polyol other than glycerol to give a mixture of esters derived from the two polyhydric alcohols. By this technique, referred to as alcoholysis, a major drying oil intermediate is produced for use in the manufacture of varnishes, alkyds, and specialty vehicles.

Esterification of refined tall oils with highly functional polyols has given all branches of the paint industry a very interesting, low priced raw material. Tall oil esters may be used as varnishes, extenders for other drying oils, or in the manufacture of alkyds where the presence of rosin esters is desirable.

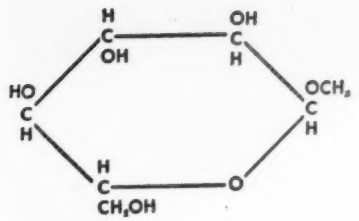
Glycerol, pentaerythritol, and sorbitol are the principal polyols used by the paint and varnish industry. Each one tends to impart special and somewhat specific properties to the finished coating. More and more, however, it has been the practice to use these polyalcohols in combination with one another to get the desired characteristics in the finished product.

Development of Methyl Glucoside

A study of the needs of the paint and varnish industry revealed that the currently available polyalcohols leave something to be desired. There seemed to be a genuine need for a polyol that would fit in with those presently used and add some distinctive advantages. One of the major requirements was low price, coupled with a ready supply from domestic sources. Of course this polyol should impart faster dry to drying oils, and thus to varnishes and resins.

Methyl glucoside meets these requirements. It can be made synthetically from dextrose, a relatively inexpensive and large tonnage product of the corn wet milling industry. However, many problems had to be faced in the synthesis and development of this dextrose derivative. Methyl glucoside is capable of existing in several isomeric forms. On evaluation of the various isomers, the alpha configuration was found to be best for protective coating applications.

Methyl α-D-glucoside, now made commercially by *Corn Products Refining Company*, is a white crystalline powder. It is not hygroscopic, has four esterifiable hydroxyl groups, and melts at 164°C



Methyl Alpha-D-Glucoside

Figure 1.

min. Its functionality and its unusual structure (Figure 1) provide interesting and advantageous properties for protective coating uses.

Drying Oils and Varnishes

To determine the suitability of methyl glucoside as a polyol raw material, preparation of synthetic drying oils was undertaken. Direct esterification reactions with linseed oil fatty acids gave esters that showed promising properties. Litharge (PbO) seemed to be the most effective catalyst. Bodying characteristics of the oils were good, being more rapid than similar synthetic oils based on glycerol and pentaerythritol. The methyl glucoside oils cooked rapidly with p-phenyl-phenol resin (Bakelite BR-254) into 25-gallon oil length varnishes. Films of these varnishes dried quickly; they were hard, showed excellent adhesion, and had satisfactory alkali and water resistance (1).

More detailed evaluations confirmed the first experiments. Fast drying synthetic oils were made in laboratory quantities by direct esterification of linseed oil fatty acids with methyl glucoside. The reactions were carried out in a 3-liter flask equipped with a mechanical stirrer, thermometer, gas inlet tube and a Dean-Stark water removal trap fitted with a condenser. The flask was heated with a hemispherical electric mantle controlled by a variable transformer. The reactants were charged at room temperature and slowly sparged with carbon dioxide. While stirring, the charge was heated to the desired temperature and then enough xylene added through the condenser to maintain a steady reflux. In preparing the new polyhydric esters, it was observed that products of lighter color could be obtained if the reaction temperature was held between 374°F and 392°F until approximately 50 percent of the esterification was completed (as measured by water recovered in trap), and the temperature then raised to 446°F.

Table I summarizes the formulation and some of the properties of several esters formed with methyl glucoside, glycerol and pentaerythritol. In the methyl glucoside and glycerol reactions the heating cycle employed was: 374°F to 392°F for 2 hours, raised to 446°F over a period of 1 hour and held at this temperature until water recovery essentially ceased. With the pentaerythritol ester the temperature was taken directly to 437°F to 446°F and held until no further water of esterification could be removed.

The oils made with litharge catalysts were allowed to stand until the lead soaps precipitated, and then they were filtered. Portions of each oil were bodied to a Gardner viscosity of Z-2 by heating at 536°F with rapid stirring and carbon dioxide sparging, and were then diluted with mineral spirits to 70 per cent NVM (non-volatile matter). A naphthenate drier combination consisting of 0.5% lead, 0.05% cobalt and 0.025% manganese was added to each of these solutions 24 hours prior to testing.

The unbodied oils were also cooked into 50-gallon oil length varnishes with ester gum. After thinning to 70 per cent NVM with mineral spirits and adding a drier combination similar to that described above, the varnishes were evaluated.

Evaluation

The drying times were determined by laying down on a 25 in. x 25 in. glass plate a series of inch-wide vertical films of 0.003 inch wet thickness. Horizontal lines of sand were laid across the films periodically by means of a small funnel that trickled out a fine stream of sand when held in a vertical position. When no further adhesion was observed the plate was raised on edge, tapped gently on the reverse side and the loose sand brushed away. Water and alkali resistances were determined on test tubes which were dip coated and allowed to dry in an inverted position for 96 hours before testing. The Sward hardness tests were run on films of 0.003 in. wet thickness laid down on glass plates (5 in. x 5 in.) by means of a Bird applicator. The hot water resistance was tested by pouring a pool of boiling water on the film (0.003 in. wet thickness, dried for 96 hours), then placing over it a 250-ml Erlenmeyer flask

(1) J. Am. Oil Chem. Soc. *29* 467-9, 1952.

Table I
PREPARATION AND PROPERTIES OF LINSEED FATTY ACIDS DRYING OILS

Polyol	Mol Ratio Linseed Fatty Acids to Polyol	Catalyst Based on Fatty Acids	Total Hrs. for Reaction	Max. Temp. (°F)	Properties of Esters			
					Visc.[1]	Color[2]	Acid No.	Sap. No.
Methyl Glucoside	4:1.07	0.5% PbO	6.5	446	G	11	5.5	176
Methyl Glucoside	4:1.10	None	10	455	E	16	18.5	173
Glycerol	3:1.05	0.5% PbO	5.5	446	H	6+	1.6	186
Pentaerythritol	4:1.05	None	4.5	446	D	8+	11.6	184

1. Gardner Bubble Viscometer.
2. Gardner Hellige Comparator.

Table II
PROPERTIES OF BODIED LINSEED FATTY ACIDS DRYING OILS

Drying Oil	Viscosity[1] (70% NVM) at 70°F	Color[2]	Drying Time hrs)	Water Resistance Cold (hrs to fail)	Water Resistance Hot (1 hr)	1% Alkali Resistance Min. to Fail	Sward Hardness After 24 hr	48 hr	72 hr	96 hr
Methyl Glucoside PbO Cat.	E	14+	1.5	288	ok	4	4	6	8	8
Methyl Glucoside No Cat.	E	18+	1.5	216	ok	2	4	6	8	8
Glycerol PbO Cat.	F	9	6.25	72	U[3]	1	2	4	4	4
Pentaerythritol No Cat.	F	10	2.25	48	ok	2	4	4	4	4

1. Gardner Bubble Viscometer.
2. Gardner Hellige Color Comparator.
3. Unsatisfactory — film failed.

(concave bottom) filled with 6 ounces of boiling water. After allowing to stand for one hour, the flask was removed and the film examined for failure. Results of the film evaluation on the oils are given in Table II and on the 50-gallon oil length varnishes in Table III.

Under the experimental conditions used, the drying oils made with methyl glucoside were faster bodying and dried more rapidly to harder films than those prepared with glycerol or pentaerythritol. In addition, better adhesion and equal or superior water and alkali resistance were observed. These same properties are also apparent in varnishes made from these oils.

As with any new development, problems often arise that require additional experimentation to solve. Laboratory work is being carried forward to improve the somewhat darker colors of the methyl glucoside oils. Thus far it has been found that the use of the esterification technique and the heating cycle described above, with either a litharge catalyst or 1 to 2 per cent neutral activated carbon, will give decided improvement in color.

Tall Oil Esters

Tall oil, a by-product of kraft paper manufacture, consists principally of fatty acids, rosin acids and a small amount of unsaponifiables. Its usage is growing in several different industries. For protective coatings the refined grades are preferred because of the improvement in color, odor and drying characteristics. Refining is usually achieved by distillation or acid treatment to yield tall oils ranging up to 50 per cent rosin acids.

When tall oil esters are made with methyl glucoside, the fatty acid portion will esterify readily at 390 F to 445 F, while the rosin acids are harder to react and require temperatures above 500 F. Even at elevated temperatures it appears that a maximum of only two rosin acid radicals can be reacted with the methyl glucoside molecule. It is recommended, therefore, that another polyol, such

(*Turn to page 80*)

Table III
PREPARATION AND PROPERTIES OF 50-GALLON OIL LENGTH VARNISHES[1]

Drying Oils Linseed Fatty Acid Esters of	Cooking Schedule Temp. (°F)	Cooking Schedule Holding Time (hr)	Gardner[2] Viscosity at 77°F	Color[3]	Drying Time (hr)	Water Resistance Cold After 24 hr	Water Resistance Hot (1 hr)	1% Alkali Resistance Min. to Fail	Sward Hardness[4] After: 24 hr	48 hr	72 hr	96 hr	120 hr
Methyl Glucoside PbO Cat.	590	1.9	H	15	4.0	ok	ok	180	28	32	48	50	52
Methyl Glucoside	590	2.0	H	16+	5.5	ok	ok	180	24	28	38	48	50
Glycerol PbO Cat.	590	6.0	G	11	9.0	ok	ok	7	14	18	22	28	28
Pentaerythritol No Cat.	590	2.3	G	9	5.5	ok	ok	210	14	18	20	24	28

1. Resin — Hercules Ester Gum 8L.
2. Gardner Bubble Viscometer.
3. Gardner Hellige Comparator.
4. Rocker standardized at 100 on glass.

New Developments In Container Industry

CLEAN DRUMS CLAIMED FREE OF DIRT, GREASE, SCALE AND ARE RUST INHIBITED

UNITED States Steel Products Division, United States Steel Company, has pioneered an important new development in the container industry — chemically clean and protectively coated drums.

Now, for the first time, purchasers can obtain steel drums that are free of grease and dirt, scale-free, and, in addition, are rust-inhibited by the application of a zinc phosphate coating as required by the Interim Federal Specification for Metal Drums (RR-D-729b). Zinc phosphate finishes on scale-free steel not only meet the specification requirements of Grade I, JAN-C-490, but have been standard practice for many years in the automotive and appliance industries as the most effective and economical pre-treatments for maximum finish durability and under-finish rust-resistance.

Some pre-treatments require only grease removal with mineral spirits or in vapor degreasing equipment; others specify the use of a phosphoric acid wash. However, in the Granodizing process,* as used at the United States Steel Products' Port Arthur, Texas plant, the drums, fabricated from hot rolled steel, are not only freed from grease but from scale as well, and are then protectively coated with a rust-inhibiting non-metallic crystalline zinc phosphate finish over the entire inside and outside surfaces. United States Steel Products has determined that a coating of 150-200 milligrams per square foot is the optimum amount — below this the danger of rusting is greatly increased, while coatings much above this range tend to break off under reverse impact conditions. These treated drums are cleaner than their predecessors. Ordinary cleaning practices, such as handwiping with solvents, mineral spirits, etc. invariably leave a residue of dirt and particles of scale on the interior. When the familiar "handkerchief test" is applied, a tell-tale residue of foreign matter is left on the cloth. Claims caused by these contaminating residues have cost drum users thousands of dollars. The same revealing "handkerchief test" applied to United States Steel Products containers processed by their new cleaning, treating and finishing technique shows no contaminating or other foreign matter of any kind remaining on the inside of the drum.

The process used at the Port Arthur and other United States Steel Products plants to insure an undamaged, protective coating over the entire drum surface, involves fabricating the drum shell, head, and bottom then treating these unassembled component parts. This eliminates the possibility of damage to the rust-inhibiting coat caused by the severe forming and fabricating operations as well as damage caused by welding the side seam. Therefore, only after fabrication are the drum shell, head and bottom treated and finally completely assembled. Final assembly of United States Steel Products' drums does not affect the protective zinc phosphate coating.

The durability of both the phosphate coat and the final exterior paint finish hinge largely on the completeness of the scale removal. (Figure 1). Although the scale is apparently tenacious, rough handling or other punishment in even normal drum usage can dislodge the scale, taking the interior or exterior coatings with it, and thus contaminate the drummed product or leave the exterior surface open to rusting.

*"Granodine" Trade Mark Reg. U.S. Pat. Off. by American Chemical Paint Company.

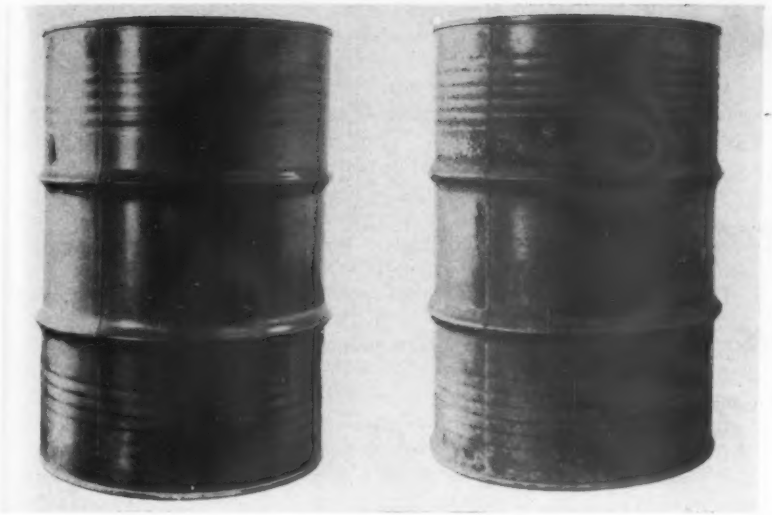


Figure 1. Exposure to weather for 1 yr. ruined the paint finish of untreated steel drum (right) but had practically no noticeable effect on the phosphate-coated drum (left). This is due to the crystalline structure of the zinc phosphate coating which provides a durable bond for paint and since the coating is non-metallic damage to the finish by galvanic corrosion is retarded

The United States Steel Products treating method assures complete scale removal, and yields a greatly improved surface to take and hold interior and exterior coatings and finishes. The bond formed between the coated steel surface and the paint gives a longer-lasting better-appearing finish particularly adaptable to the bold, poster-type advertising which is recommended for all drums.

The Spray Line

Cleaning and phosphate-coating steel drums at United States Steel Products' Port Arthur plant takes place in one of the largest power spray washers in the world. This is shown in Figure 2. The complete sequence of operations is given below and floor plan of the automatic nine-stage phosphating machine is shown in Figure 3.

I. CLEANING

Step No. 1 Alkali-cleaning (grease removal)
Step No. 2 Rinsing
Step No. 3 Sulfuric-acid pickling (scale-removal)
Step No. 4 Rinsing
Step No. 5 Rinsing
Step No. 6 Rinsing

II. COATING

Step No. 7 Zinc phosphate coating with "Granodine"
Step No. 8 Rinsing
Step No. 9 Final acidulated rinsing

Phosphatizing steel containers involves four operations not at present found in the conventional container manufacturing plant. These are:

1. Grease and dirt removal.
2. Scale removal after welding the side seam.
3. Phosphatizing.
4. Final conditioning by rinsing in an appropriate dilute acid solution.

Phosphate coatings as required here are applied by bringing a balanced zinc phosphate solution into contact with clean, scale-free steel. For the treatment of large numbers of similar products such as these, continuous spray phosphatizing machines are universally used. In such equipment, the work passes on a suitable conveyor through a number of zones or stages in each of which, by means of a pump and spray nozzles, the whole surface is subjected to the action of a chemical solution (or rinse water). The run-off is collected in a tank and resprayed.

Replenishment of chemicals, and/or replacement of solutions takes place in the collecting tanks. These include screens to remove foreign particles from the solution, constant level floats to replace evaporated water, etc.

Since phosphatizing is effective on only grease-free and scale-free surfaces, the machines must provide stages or zones to remove these impurities. Finally, they must remove excess coating chemicals and apply to the surface the conditioning treatment called "acidulated final rinsing" with very dilute solutions containing (ACP "Deoxylyte"†) chromicphosphoric acid, or "acid rinsing," for short. This is very important if highest corrosion resistance and resistance to blistering of the organic finish is to be obtained from the coating.

Details of the Treatments

In the separate zones of the washing machine, appropriate solutions are sprayed onto the work to per-

(*Turn to page 59*)

†Trade Mark Reg. U.S. Pat. Off. by the American Chemical Paint Company.

Figure 2. Power spray washer at United States Steel Products' Port Arthur plant. Steel drums are carried on a conveyor in specially-designed racks through cleaning, phosphating, and rinsing compartments. After this nine-stage pre-treatment, the steel drums are assembled, painted.

Forum on Latex Paints

PRESENTED BY
NEW YORK PAINT & VARNISH PRODUCTION CLUB

SOME 380 members and guests turned out for the March meeting of the New York Paint and Varnish Production Club held on March 5th at the Building Trades Employers' Association, 2 Park Avenue, New York City.

The meeting consisted of an "Open Forum on Latex Paints." The discussion was led by James A. Massaro, Norton & Son, Inc. and the panel was comprised of Herbert P. Beardsley of E. I. du Pont de Nemours & Co., Inc., C. R. Davison of Benjamin Moore & Co., Walter A. Henson of the Dow Chemical Co., Walter H. Hoback of the Calco Chemical Div. (American Cyanamid Co.), and Henry F. Payne of the American Cyanamid Co.

PANEL MEMBERS

Left to Right: C. R. Davison, J. A. Massaro, H. P. Beardsley, W. E. Santoro, W. H. Hoback, W. A. Henson, H. F. Payne.

In view of the interest in latex paints, it was decided some time ago to have a forum on this subject in order to promote a better understanding and clearer appreciation of the position of latex paints in the surface coating industry.

Mr. Massaro opened the discussion outlining the history of water paints. He traced the development of calcimine, casein resin emulsion paints, and finally the latex systems. With regard to the latex types, Mr. Massaro made the following observations:

The development of high polymer latices was a direct result of the synthetic rubber program during World War II. By utilizing emulsion polymerization techniques, high polymer latices could be synthesized such as butadiene-styrene copolymer, polystyrene (pre-plasticized and post-plasticized), polyvinyl acetate, vinyl chloride-vinylidene copolymer, polyacrylate copolymers, etc.

He further pointed out that the acceptance of latex paints is primarily due to their good properties and ease of application. However, some of the problems connected with the latex system are color stability, foaming, and package stability. Research is currently being directed toward elimination of these problems and also developing systems for all types of surfaces.

After these introductory remarks, the following questions from the audience were presented and these covered such topics as the composition of latex paints, foaming, film formation, freeze-thaw stability, selection of pigments, etc. The answers as given by the panel are also presented.

1. What constitutes a latex paint? How does a latex paint develop a film?

A latex paint is essentially a pigment-binder dis-

rsion in a water phase. The water phase consists of a protective colloid, emulsifier, sequestering agent, and dispersing agent. The pigment-binder portion is made up of pigment, a particular latex (e.g. styrene-butadiene, polystyrene, polyvinyl acetate), plasticizer, other resins such as alkyds.

The mechanism of film formation is best explained by the fact that after 50 per cent of the water evaporates, the dispersed resin particles coalesce forming a continuous film. As this process continues the pigment particles are occluded in the latex particles and the remaining water evaporates through escape channels.

2. Explain the use of non-ionic emulsifying agents in latex paints?

The emulsifying agents should be anionic or cationic; it is not practical to use a non-ionic agent.

3. Is freeze-thaw stability feasible in latex paints?

Freeze-thaw stability is feasible in latex paints. For practical purposes, if a paint can withstand 3 cycles of freeze-thaw, it should be able to meet most packaging and application requirements in so far as this particular property is concerned.

4. What are the merits of latex systems in primer-sealer paints?

In this particular application, the polyvinyl acetate system has the following desirable characteristics: rapid drying, does a good job of sealing and priming in one coat, good adhesion, good holdout and non-penetrating properties for oil-base top coats, and does a good job of bridging cracks in plaster.

5. Is it possible to put a primer-sealer latex paint on fresh plaster in the morning and follow with a coat of flat (oil-base) in the afternoon?

All members of the panel presented their opinion on this question and all agreed that such a practice was not safe because the alkali from the fresh plaster would saponify the oil in the flat paint, and also the pressure of the water would have a deleterious effect on the paint film. However, one member of the panel pointed out that laboratory tests of such a practice showed no failure, but indicated that this was not indicative of an actual situation, and more work is required to justify such a practice.

6. How can foaming be eliminated both in production and application?

The only answer to this problem is the addition of anti-foaming agents by trial and error until one or a mixture of two or more anti-foaming agents will do the best job with a particular latex system. Essentially, anti-foaming agents hinders the stability of a latex system because too much anti-foaming agent will attack the protective colloid film around the latex particles.

7. In the selection of pigments for latex systems, what properties are looked for?

The pigments must have the following properties: stable to alkali since most latex systems are alkaline, free of polyvalent salts, contain a minimum amount of soluble salts, have reasonable light fastness, and ease of wetting with water.

8. What are functions of plasticizers in latex paints?

Some latices are not soft by nature such as polystyrene, polyvinyl acetate, etc. and a plasticizer is needed in formulating them into a finished paint.

9. Do water-soluble components exude to the surface of the dried film, and if so what deleterious effect does this condition have on the film itself?

There is no trouble encountered with such a phenomena since very small amounts of these materials are used in the formulation of the paint.

10. How important is pH control in latex paints?

pH is very important and for latex paints the pH must be in the alkaline range. If the pH is too high the color and the can stability will be affected; if too low the activity of the preservative will be modified or nullified. However, the pH is dependent on what type of latex is used. In some cases, it can be neutral or even slightly acid.

11. What is the influence of mercurial fungicides on latex paints, especially regarding the stability of the system?

The only precaution with mercurial derivatives is avoiding using such derivatives in paint containing sulfide pigments.

12. What part does casein play in raising or lowering the viscosity stability of latex paints?

Casein is used as a protective colloid and one of the troubles with casein is the difficulty of putting it into solution. If casein is not put into solution properly, the viscosity of the system will be affected. Also casein is subject to putrefaction and a preservative must be used in order to obtain good stability of the system. Generally speaking, temperature and concentration of the protein dispersion have no effect on the viscosity stability.

13. In a two coat system is it better to use both latex paints (for primer and top coat) or use an oil base as a top coat?

Both systems are good.

14. Are polyvinyl acetate latex dispersions available in both the acid and alkaline range, and, if so, why are both needed?

Because of the hydrolysis effect, polyvinyl acetate emulsions tend to become more acid, and this accounts for the fact that some of the polyvinyl acetate systems are little on the acid side. Only the alkaline type is available. Acid types are not manufactured.

15. In a latex-alkyd film what is the effect of driers on the hardening of the butadiene-styrene component of the paint film?

Since small amounts of driers are present, the overall result is negligible.

16. Is it possible to formulate a practical high gloss latex paints with all stability features attached to it?

All members of the panel gave their opinion on this question. Most think it is possible, but as yet none have been marketed. However, one member of the panel feels that gloss is not possible from an emulsion system, but only from a soluble system. Therefore, any gloss emulsion paint will, in reality, resemble more a soluble system.

17. What is efflorescence in a latex paint?

Efflorescence is the leaching out of soluble salts and subsequent crystallization of the salts on the surface.

18. What advantages do polyvinyl acetate emulsion paints have as primers?

Polyvinyl acetate has good hold out and oil resis-

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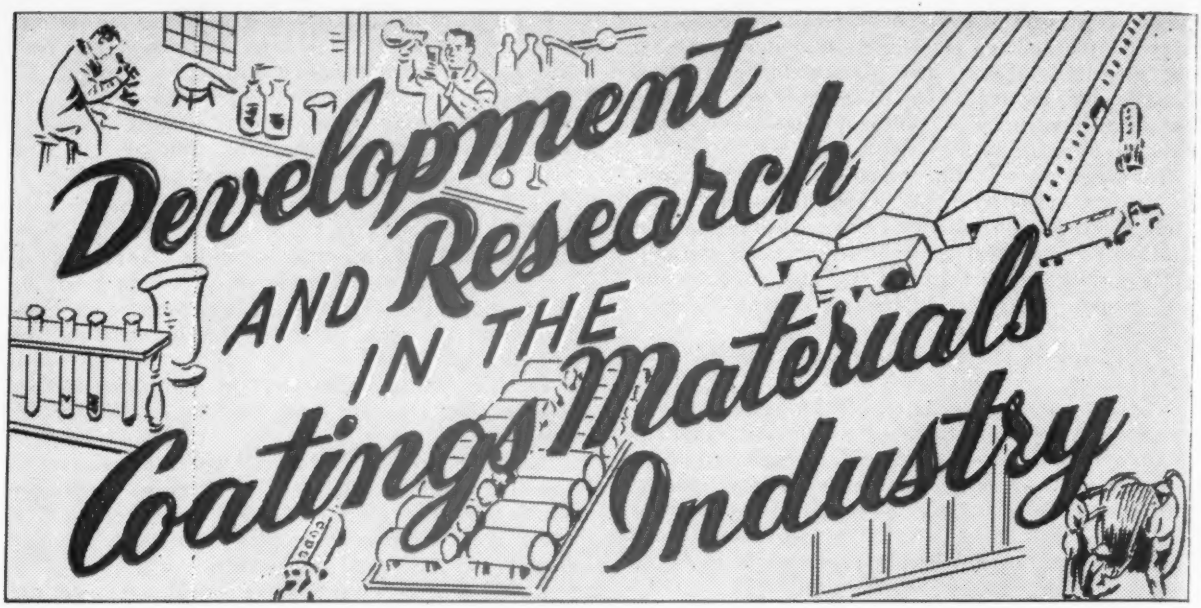


PART XII

LOOKING TOWARD THE FUTURE

By HOWARD C. WOODRUFF
Alkyd Products Engineering
General Electric Co.

IN approaching the next forward steps in our industry, we aim to adjust ourselves, our technology and our business effectively and in an orderly manner to conditions we will find prevailing in the future.

In order to do this, we need a blueprint of the future. This must be much more than a hazy vision, it must be a detailed engineering drawing of the future architecture of industry, its parts, the relationship of the parts and an idea as to where we and our organizations fit in to them.

Industry and research have available many techniques for getting and utilizing scientific and detailed "futures information".

This treatment of the subject of Research and Development methods applied to Sales, is based on the varied personal experiences of the author and the facts and examples cited do not necessarily represent the practices of any single company. Editor.

Research and Development technics depend on measurements. The function of getting means to systematize and measure the effects of present industrial changes on future operations becomes a prime mover in company and industry growth. This final article in our series of articles surveys the methods and applications of Research and Development technics in all phases of the Coatings Materials Industry.

Although no issue except a "dead issue" is unquestionably delineated and beyond alteration, many types of valid futures information are available now. As we study to adjust to change in industrial environment, our adjustment will naturally operate with increasing effectiveness.

Data on the state of the industry a it will present itself to us, to be of any utility, must be (1) specific as to place, time and type, it must be (2) significant, so that we can modify our actions now, to be in accord with the conditions then, (3) it must be based on reasonable reasons. Otherwise expressed, useful futures data must be "measurement data".

Basis for Measuring Change

Certain principles relating to the properties of matter and the interactions of matter with energy probably will not change. We can safely determine from our experience in the past that the operation of natural laws, such as the operation of cause and effect, reactions will not vary. But it is apparent to all that our industry is changing, and by understanding the

operation of the changing factors of industry, we can understand the total of the changes which are occurring. It is by using the unchanging principles mentioned as yardsticks (standards of measure), that we can take a measure of change, both change occurring and change about to occur.

A *measured forecast* of future industrial conditions therefore becomes based on the following:

1. Preparation of comprehensive, detailed, classified, segmented and codified data on the present condition.
2. Statement of items causing changed conditions by type, date of effect, size and place of effect.
3. Statement of the effect of the changed condition on the segment involved and on the total — by date, type and amount.

The measured forecast is a summation of the data comprising the statement under (3) above. The confidence limits or limits of reliability of the forecast are dependent on; the accuracy of the data regarding the present situation, the accuracy of a statement of items causing changed conditions and the length of time in the future that the forecast covers. An uncertainty in forecasting is the appearance of new causes. Since a forecast is based on established causes that we have information about at present, no information as to means of accounting for causes that will originate in the future is available. This is equivalent to saying that we can clearly foresee a few short steps ahead, that we have a horizon bonded by our known technology and organization, but that we have no means of seeing over the horizon.

Measured Futures Operation

The basis of the product development function, the foundation of business expansion, and the means of retaining present business under competitive position is *action*. This means intelligent action as a result of prediction.

Prediction itself can be the result of a measure or the result of a guess. Measured forecast is now used by certain companies in the paint and varnish industry and we observe that its use is rapidly increasing. Nebulous prediction and operation "by guess" are also prevalent at the present time. Nebulous predictions originate either from misleading simplification or from an attitude that "even the past is too complicated to understand so why pay attention to a future".

Understanding the present is equivalent to operating "under control". Control means getting enough items of data about what is actually going on so that each item of data will fall into place in a unified picture. You have to have enough pieces of a jig saw puzzle to know which are missing. Then you locate the missing pieces and have a complete picture. So when you find you have a reliable mass of data it is necessary to find connections between your items of data. Having found this you have a consistent "present picture". We find that it is as difficult a research problem to understand what we are doing day by day as it is to find out new things.

The function of control — in view of futures operation — operates to (1) assure that no cause operates which will result in a change in situation or product characteristic beyond normal

limits of variance and (2) establishes a reliability range on current data and (3) by pointing out variations makes possible an increased reliability.

In view of "measured futures operations" the development function consists of applying and varying measurable conditions, and predictably producing a new effect — the new effect being called the objective of the development. In this framework research becomes the isolation, description and evaluation of causes; organization becomes the assembly of each function in accordance with the optimum adjustment to company objectives in a "measured future".

Types of Change

Since the basis of futures operation originates from the measurement of changed causes on our entire industry, classification of change by type becomes necessary. Changes in character of product, product-end-use and organization occur simultaneously with changes in size. The pattern of change is made up by charting (making a map) of the detailed divisions of each change.

There are two significant records of change — the change of the total environment (industry) and the change of an individual organization (company).

Changes in the technical character of a business or industry originate:

1. from the impact of new materials or technology,
2. in the natural evolution by the process of refinement and adjustment,
3. accumulation of forces against resistance change and
4. expansion.

Changes in size arise from (a) multiplication of units of production, sales or, (b) approach to new geographic markets, or (c) integration with other industrial units, without necessarily an alteration of technology.

Examples of Changes

The impact of a new material on the industry may result in infiltration of the new material into channels alongside established uses. As an example of this, the availability of styrene resulted in the possibility of styrenated oils and styrenated alkyds. Such styrenated products having certain improved characteristics over the non-styrenated. The industry assimilated the styrenated materials as simply as it would any other varieties of existing products and used the styrenated derivatives in good volume. Similar absorption is occurring and continues to occur in the case of Epon resin esters which have certain characteristics superior to other commercially available yet similar products. The Epon esters are, however, moving through conventional development and sales channels.

But the impact of a new material on the industry may cause another result. The formation of a new and distinct segment of the industry may occur. For example the technology, sales approach and application servicing of the chemically resistant coatings, such as those chemically resistant coatings based on high temperature curing phenolic resins, differs enough from the majority of coating materials that the personnel to handle chemically resistant coatings is not interchangeable with the personnel

handling conventional paint and varnish production development and sales. Consequently, the industry handling chemically resistant coatings forms a distinct segement within the paint and varnish industry.

New techniques evolve from within an industry by the process similar to evolution with the net result that the industry itself is changed. The development of process controls and process simplication resulting in new equipment and labor saving methods falls into this classification.

The unfolding of a new phase of industry, arising from the accumulation of means to overcome a resistance to change, recently occurred when water-thinned paints were introduced as interior architectural finishes. They were marketed for use (1) where solvent thinned flat oil paints had previously been used and (2) in addition for applications (such as over wallpaper) where solvent thinned oil paints were not generally recommended. For many years previously, traditional paint practice did not consider water thinned paints suitable for high or even medium quality interior finishes. But various research and development work continued to accumulate data which gradually added up to the possibility of doing just this. When enough of the fundamental technic was available, water-thinned paints began to be marketed. The marketing was carried out by distinct sales units. Rapid customer acceptance proved that the traditional preoccupation with solvent as the only possible thinner was not justified.

Industry change in size, as distinct from change in type, originates primarily from the tendency to expand production to accommodate expanding needs — not necessarily new types of needs. Thus the industry expands with increasing housing, increasing demands for painted articles, such as furniture, appliances, automobiles. This expansion being approximately concurrent with population growth. An individual unit of industry (company) may change in size by approaching new geographic markets (export business is an example).

A company may increase in size without necessarily increasing in sales volume by the process of integration into the production of one or more of the major raw materials used. This is the background of the trend for paint producers to produce alkyd resins, which constitute about half of the physical volume of materials they use.

Adjusting to Change

When a measured forecast is available, systematic adjustment to changed situation becomes possible. Adjustment including ideas, methods, technology, products and organization is often necessary. The technic of these phases of adjustment to the future, fall within a new phase of the Research and Development function which is beginning to get the name "Operations Research".

The technic of adjustment starts with operation from the chart of measured forecast, to form a plan of action; proceeds by putting the plan into effect, reviewing the results, and taking more precise action whenever results indicate necessity. Such stepwise approach is quite different from many previous attempts to function without understanding or without detailed basic systematized data.

The plan to be of operating significance and workable consists of a series of stepwise attainable objectives. The "Objective" series being the building blocks of the plan. As a result industrial and scientific planners put increasing emphasis on the power of objectives. As a criterion of action, the objective becomes a focal point for the selection of pertinent facts, for the orientation of energies, for the arrangement of facilities, for the framing of organization prior to and during action, for the time scheduling and as a point of review and accounting. Each individual, company or industry has many objectives. Due to natural limitations of time, energy and resources, all objectives cannot be acted on at once. Consequently each objective must be weighed and evaluated in accordance with (1) risk to the total involved and (2) importance in comparison with the other objectives. Objectives usually fall into the classification of "key objectives", "dependent objectives" and "desireable but not essential". While the customary conception of an objective is a changed effect, maintenance of base of operations becomes an objective where change is not a primary aim.

Concurrent with the increasing realization of the power of objectification in planning, the power of organization is brought out by "Operations Research". Organization ties together resources at hand, or provides for new resources capable of achieving stated objectives. Structuralized organization facilitates the blending together the efforts of individuals into a team, provides a classified structure in which work may be done and devises means to measure effectiveness and make suitable adjustments for individual and group efforts. Engineering, interpreted as selection of parts measuring them against the job they are expected to do and assembling them into a functioning mechanism for doing a job, has changed the status of organization from haphazard to precision operation.

There is an intermediate ground, a test area, where task forces applying new organizational methods join with other task forces trying out the results of new developments to get data on team results. A test area makes possible isolation and evaluation of new conditions in an environment equivalent to industrial use.

Tools of Progress

Progress in the Coatings Materials Industry and associated fields is measured at the scoreboard at the "product" goal. The fundamental means of progress is accordingly through the media of materials — raw material, finished product or market for materjal.

Tools making possible materials more precisely suited for use, more in volume, more for a given cost, more effectively — are tools of progress. Some of these are (1) development of methods for assembly and correlation of cause and effect factors of factual data, (2) commercial production and availability of new raw materials (3) standardization of materials and specifications for same and test methods relating to specification (4) development of tracer and analysis technics so that we can determine what happens to our materials, including physical, statistic and cost analyses, and (5) development of new and/or more effective processing technics.

The forces contributing to forward motion may be briefly summed up as forces contributing to data certainty.

There are, however, natural conditions that apply a negative balancing when any "progressive" step is attempted. These arise generally from natural limitations. At first introduction, new materials, even though they have certain outstanding characteristics, are expensive. This limits interest in them because it is difficult to foresee the applicability at prices higher than presently used materials. Not only are new materials expensive, but even more expensive is getting information about how to use them. Accumulation of new information requires risk capital. But in addition to monetary expense, data increases rapidly to a size and volume and complexity that difficulties in handling, interpreting, and comparing new with old data arises. This coupled with uncertainity as to the real need for the data accentuate the retarding effect of uncertainty in place of data.

The retarding effect may be summed up in the word "uncertainty." Uncertainty of the return of expense — uncertainty of the significance of results.

Of course, one of the more powerful

effects of uncertainty, when uncertainty is recognized, is the stimulation of action to reduce it. This calls for the role of Research and Development.

Briefly expressed the function of research in business can be considered "the application of scientific methods to the reduction of uncertainty."

Current Tendencies

There are observable technological tendencies which apparently will be of increasing importance in the near future.

One of these is an expansion in the number and types of raw materials available for coatings material manufacture. These stem from process modifications in petroleum refining, new processes for modifying coal tar products, completely new chemical products from direct synthesis using coal and ammonia as raw materials and the many chemical building-blocks derived from agricultural sources and forest products.

Another observable technical trend is the striving for an increasing scope in our experimental tools. The increase in instrumentation is the beginning of the swing toward greater use of physical methods. Recent literature refers to electrometric methods of viscosity determination, more sensitive cure rate instruments, detailed physical constants as descriptive of drying time. Electronic instruments have become available for process programming and weighing and checking materials entering into processes.

To increase the scope and utility of observed data the application of the methods of statistical mathematics is about to be applied in our industry. In the period ahead we will see increasing use of statistical mathematics for carrying out laboratory experiments, in determining optimum process conditions and in sales problems approached by Sales-and Development teams.

This accounts for specific instrument requirements in production control, performance testing, and chemical analysis.

Increasingly "specific operation" is an observable tendency already approaching the median mark. In production research, methods are increasingly applied to control. Equipment passes from the flexible type to the type for production of one material at the lowest possible expenditure of time and labor. Products themselves become specifically formulated for well understood end uses. The scientific approach to the sales development function starts from the idea of a "specific" market. The growing realization that separate companies function as interrelated units of the industrial organization results in an increasing tendency to inter-company research projects. These result in some instances in cooperative company ventures. But the initiative for the design of new coating systems still appears to remain with the raw material suppliers.

The changing trend of greatest significance in the long term appears to be the rearranged viewpoint of the Research and Development man to his work. The tendency to explain to ourselves why we do the things we do in the order in which we do them indicates a shift to the fundamentally evaluative (scientific) approach. Certain individuals and groups appear willing to substitute new methods of handling problems as more suitable for the production of results than older methods. Efficiently organized Development groups recognize "data" as the result of work and research, and that there are in all problems certain basic groups of data that must be assembled before any planned program of objectives becomes possible. The view that data systems are systems of interrelated grill type structures, just as engineering systems are, is opening up the engineering approach to development.

Certain observable business trends as related to the Research and Development function are emerging from our present status as of growing importance.

Among these appears the continuing organizational effort to adjust to the "reality of specialization" — the tendency to redesign operations either to (1) the manufacture of products for a large volume and array of end uses selling at "commodity" prices or (2) to design to special functioning and price accordingly. This tendency is carried through research, production, product development, organization and sales.

Concurrently the operations of organization appears to be developing toward a more simplified direct economical transition of materials from basic raw materials through to the point of use.

Management operations appear to tend toward:

Recognition of wants and needs as primary to operations resulting in the growth of market survey work and systematic market analysis.

Acceptance of systematized functional planning as a tool of forward operations — using a plan as a description of means to be assembled or designed, a charter to act and a scheduled follow-thru.

Obtaining coordination between Development, Production, Sales by the establishment of stepwise attainable and significant objectives.

The individual engaged in Research and Development activities works toward effectively contributing to his organizations favorable "futures position". Like the attitude of an organization, the individual works best in an evaluative environment.

The Development man aims at a systematic presentation of the industrial scene and studies the structure of his and related industries and by operating from structure his efficiency progressively increases.

Having before him facts, he can analyze for his own company's industrial strength and move from these as a base. Team work results in advantages for each individual and the company. The individual should make full use of resources available to him and acquire the necessary equipment and information to operate toward maximum efficiency.

The individual must evaluate his situations, again as the result of a forecast, organize his approach far enough ahead so that he can work from a reserve of data and information rather than against a demand for data. This makes orderly scheduling possible and thereby increases individual productivity.

The individual person, like any other unit of industry evaluates his own performance continuously and operates "under controls". This includes control and prediction charts of his own and other industrial information, a constant review of the literature of his subject, and a prediction as to where and how the gaps in his own and industrial structure of information appear. This is the technic of follow-up and readjusting to new situations as and before they appear.

Research and Development work can be highly productive. It is only productive when we make it so instead of letting it run its course by chance.

This series of articles has shown how Development and Research isolates, evaluated, and retains the pieces of the technical-business jig-saw puzzle. Then, when these pieces fitted together add up to a favorable situation, get into action. Development and Research are action processes.

Trends In Alkyd Manufacture

By BENJAMIN FARBER
Farnow Varnish Works

WHAT are alkyds? Essentially, they are esters of polyhydric alcohols and polybasic acids, usually modified with either straight chain or ring type monobasic acids and reacted to a definite polymer size.

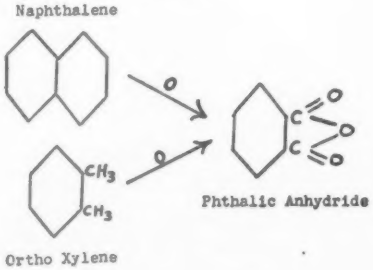
An example would be a reaction product of phthalic anhydride as the polybasic acid, glycerine as the polyhydric alcohol, and soya fatty acids as the straight chain monobasic acid.

Polybasic Acids

Up to the present time, phthalic anhydride is the principal polybasic acid used in alkyds. There are many reasons for this. Its raw materials are available and low in cost. The resins made from it have many good properties all combined in one vehicle. While damar varnish has excellent color and color retention, it is brittle and thermo-plastic. An alkyd can be made of excellent color retention, excellent flexibility, and very little thermo-plasticity. A pure phenolic, China-wood varnish, has excellent outdoor durability. However, it discolors and loses gloss. The alkyd has excellent outdoor durability and doesn't discolor. Its gloss retention is much better. Also, with phthalic anhydride, lower priced and more available oils like soya bean oil can be used without sacrificing the quality and durability of the film.

Phthalic anhydride is made from two types of raw materials (See Fig. 1).

FIGURE 1



An isomer of ortho xylene is meta xylene. This also can be oxidized under control (See Fig. 2).

Since the COOH groups are not in the ortho position, no anhydride can be formed.

With tests run so far, the substitution of isophthalic acid for phthalic anhydride, equivalent for equivalent, increases the viscosity of the alkyd, improves the color, and shows less loss in cooking in the kettle. The drying time is faster. The water and alkali resistance are better. According to accelerated weathering tests, the isophthalic acid resins are showing up better than regular phthalic types. Actual weathering tests will probably confirm this property.

Para xylene can be oxidized to terephthalic acid (See Fig. 3). It is mainly used in the making of fibres like dacron. It esterifies much more slowly than phthalic anhydride or isophthalic acid, probably among other reasons, because it is not too soluble in the reaction mixture. The alkyds made

Presented at the seminar of New Developments in Organic Finishes held at New York University on Jan. 13, 1953.

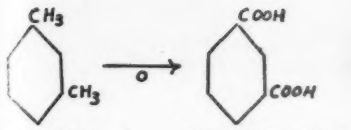


FIGURE 2

from it show very high viscosity and good drying properties.

Instead of phthalic anhydride, tetrahydrophthalic anhydride is being tested in resins. It does not differ much in its structural formula to phthalic anhydride except that the nucleus is no longer an aromatic type.

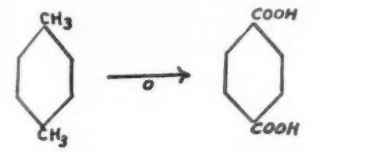


FIGURE 3

The raw materials are butadiene and maleic anhydride which go through the Diels-Alder reaction — the 1, 4 addition (See Fig. 4).

Polyols

When we go to the polyalcohol part of the resin, we also have a choice. The old standby is glycerine. It is still the work horse of the polyols both as the alcohol and, in its combined form, as the triglycerides of fatty acids known as oils.

Pentaerythritol is another important polyol used in large tonnages. When used properly, a high viscosity, better gloss, much better water resistance, and a harder drying resin is obtained. This is because pentaerythritol is a more compact molecule with a functionality of 4. Glycerine has a functionality of 3. It has been found that the greater the functionality the higher the viscosity, the greater the cross linking effect, the faster the gelation, the better the chemical resistance, and the faster the dry.

Dipentaerythritol, when available, may be used in long oil alkyds. It can be considered as being made as shown in Fig. 5.

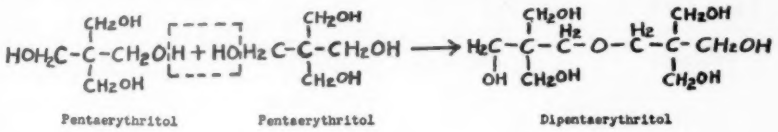


FIGURE 5

It has an other linkage with 6 functional groups. Because of this higher functionality, better drying, greater water and chemical resistant alkyds can be made. However, special precautions are needed to prevent gelation in the kettle.

Tripentaerythritol with 9 functional groups is much too reactive to be used in normal alkyds. The resin gels before the acid number is anywhere near down. Also, the phenomenon of seeding is often incurred.

Functionality can be averaged down by using lower functional alcohols. Thus ethylene glycol or propylene glycol which are diols, or abitol, a reduced resin to a monoalcohol, are used for that purpose (See Fig. 6).

The combinations of glycol and the higher polyols don't give, for some reason, the same tack free dry or hardness that is obtained from glycerine. However, their use gives us a method whereby we can reduce viscosity or increase viscosity before gelation.

The reduced sugars, sorbitol and mannitol are used in alkyds too (See Fig. 7).

Since these polyols tend to form lactones or inner ethers, instead of the theoretical functionality being 6, it is closer to 3 or 4. For best results, it is usually used with pentaerythritol or glycerine. Methyl alpha-D-Glucoside (See Fig. 8) has 4 hydroxyl groups for esterification. Two of them have approximately equal reactivity, and the other 2 are slower to esterify. The molecular weight is 194. The combining weight is 48.5. That of the technical material is approximately 52. This material is being investigated at the present moment.

Other polyols, like trimethylol propane and inositol are being looked at too.

FIGURE 6

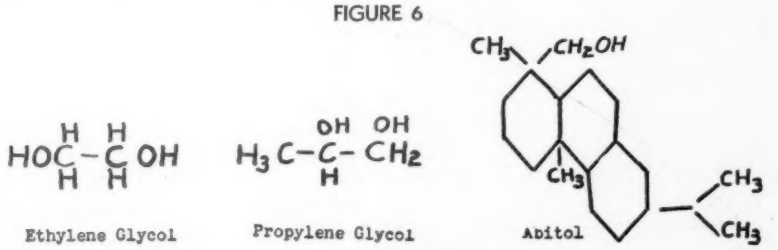
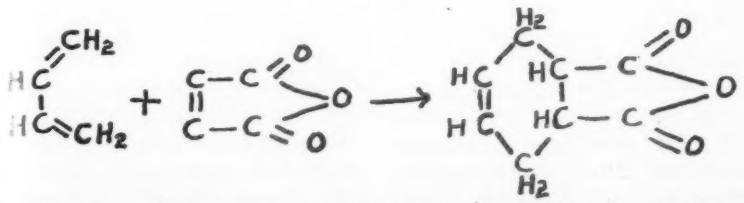
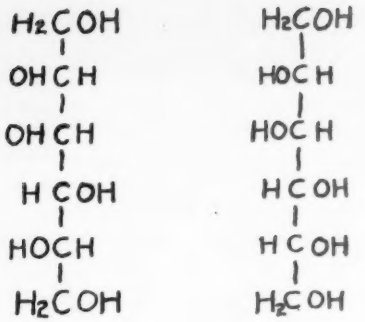


FIGURE 4



Styrenated Alkyds

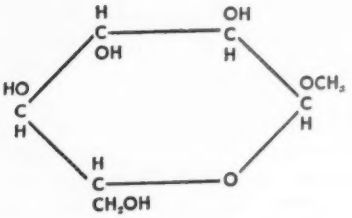
Styrene is a monomer used as an additive in alkyds. It shortens the drying time sometimes from 4 hours to 15 to 30 minutes. The chemical resistance is improved. The film is harder. The light color is maintained. The weathering properties are good. The raw material cost is usually lowered. There are several ways to introduce it into the alkyd. We may styrenate the fatty acid; or we



Sorbitol Mannitol

FIGURE 7

may styrenate the oil; or we may styrenate the alkyd itself. In most cases, the last method is preferred.



Methyl Alpha-D-Glucoside

FIGURE 8

Flat Alkyds

Within the past year or so, "flat alkyds" have become very popular. The per cent PA varies from 28% to 38%, usually. Their viscosity varies from S to Z_2 at 30% non-volatile, or Y to heavier than Z-6 at 35%. They don't dry to a flat finish in themselves. They were given that name because they are mainly used in flat finishes.

These alkyds have some interesting properties. Although they are very highly polymerized, flat paints made with them have easy brushing properties. When properly pigmented, they show excellent non-penetration and good washability characteristics. They produce a uniform finish on wall or other surfaces of different porosities, even when a deep tone color is used. This is the first time we have been able to get a flat finish that shows up so uniformly well in appearance without a great deal of wall preparation. Because flat alkyds gain in washability in a short time and shows good adhesion, they can be used over all surfaces including metal.

Equipment

Because we are dealing with acids, phthalic acid, maleic acid, fatty acids, in the cooking procedure, the materials of construction used in making cooking kettles and tanks are important. We must have a surface which will not corrode, will not contaminate the batch adversely, and maintain the color of the alkyd through its four to eighteen hour cooking cycle.

Originally, copper was used in varnish making kettles. It produced poor color and the bottoms had to be replaced very often. Monel came into the picture for a short while. It was found that this metal did not stand up too well in durability. True, it was better than copper. When fatty acids were used, we also got a green coloration with monel — not quite as bad as in the straight copper kettle, but it was apparent. Monel is an alloy of nickel and copper.

Aluminum gave us very excellent color. However, it had a tendency to distort or "creep" at high temperatures. Also, if we had a fire, the aluminum tended to melt.

Glass-lined equipment has been looked at. Because most of us add solids, as well as liquids, into the kettle, we have been afraid to use it because some of the glass might chip off.

18-8 stainless steel seems to be preferred. Here again, there has been an evolution. 18-8 stainless steel means 18% chromium, 8% nickel, plus some small quantities of other alloying elements like manganese with the rest of the iron.

Originally, the kettle makers started out with #302 stainless. This was replaced very soon by #304, which was not too bad, but had a tendency to become brittle. #304ELC, meaning extra low carbon, reduced this tendency.

#347 stainless, which has about 2% columbium added, practically eliminated the tendency towards embrittlement. However, under very bad organic acid conditions, we got some discoloration in our vehicle. #316 stainless was a stop forward in that respect. This stainless steel is stabilized with approximately 2% molybdenum. This stainless steel shows the best color and best corrosion resistance as compared to the others above.

Fire Fighting

Because our materials are organic and readily burnable, we are always interested in new and improved methods of fire fighting. A stream of water cannot be used in fighting an oil fire, because the water sinks into the burning oil; then the water turns to steam at the bottom of the container, and the oil or resin spreads out while burning.

Foam is an answer to that problem. The foam blankets the top of the burning oil, preventing the air from getting at it, and thus the blaze is extinguished. It is still the best thing we know for a bad fire out of control. The continuous type unit is an excellent system. There are two disadvantages; it is messy to clean up, and the system must be kept from freezing during the winter time.

For a quick flash fire, a CO_2 cylinder may sometimes extinguish it in seconds, providing (1) there are no hot spots to reignite it; (2) there is not enough draft to disperse the CO_2 before it dilutes the air sufficiently so that it does not support combustion. Of course this is the cleanest method. There are no residues.

However, because the fire does reignite often, the dry powder type of extinguisher is being seen around fire danger places as the first line of defense. The cylinder is somewhat similar to the CO_2 cylinder in appearance. Powdered sodium bicarbonate with some ingredient like calcium stearate to prevent lumping and caking is spread on the fire by a gas like CO_2 or N_2 under pressure. Probably, compressed air would be just as good because it is the sodium bicarbonate that does the extinguishing.

Water fog is another method that shows up well. The water is dispersed into very fine mist through a special type nozzle under 45 to 125 pounds per square inch

(*Turn to page56*)

Filling Problem Solved

HOW DuPONT ELIMINATED DRIBBLING OF THINNER AFTER NOZZLE REMOVAL

T. H. McCarthy lifts shutoff sleeve to show how the filling nozzle drops into container. Note one of 2 discharge ports designed to flare liquid outward toward sides of can to control foaming at high filling rates up to 20 GPM. As assembly is raised from can, sleeve drops against rim at bottom of nozzle, closing discharge ports and stopping the after-drainage.

ELIMINATING the dribbling problem during the removal of filling nozzles from small containers such as one or five-gallon cans, the E. I. DuPont De Nemours paint plant at South San Francisco, California, has developed special filling nozzles for use in conjunction with quantity control meters employed in handling lacquer thinners and other highly volatile liquids. Their problem was particularly critical due to the fact that even a small amount of spilled liquid would cut the exterior paint finish on the product cans.

The nozzle itself is designed with two side discharge ports near the bottom, directing flow against the sides of the can to control foaming developed by fast filling rate. These discharge ports are covered by a spring and weight loaded sliding sleeve as the assembly is lowered into the can. Downward progress of the sleeve is stopped by a collar which rests on the top of the can, allowing the nozzle to drop farther into the container, uncovering the discharge ports.

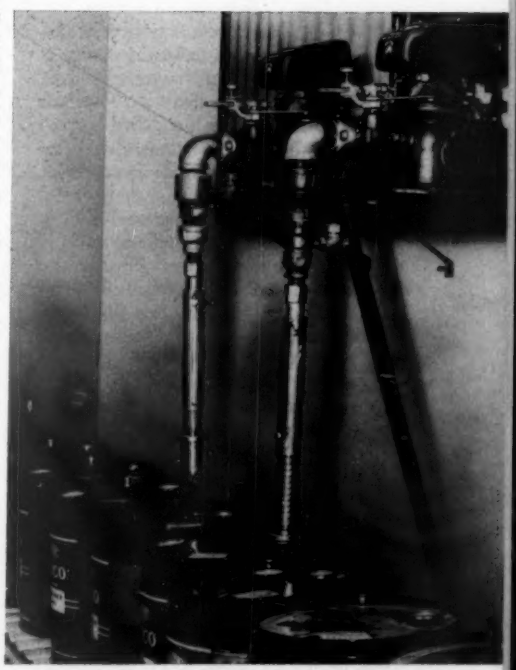
As the nozzle is raised upon completion of the filling operation, the sleeve automatically drops to its original position against a rim at the bottom of the nozzle, effectively cutting off any dribbling or after drainage.

The entire nozzle and sleeve assembly slides vertically over an inner tube in a fixed position above the roller conveyor which transports cans to and from the filling location. The units are connected directly to the discharge side of the meters, which in this installation are Brodie Model X-31 meters equipped with Model SRQ Quantrol, which deliver a single fixed quantity at a rate of 20 GPM for each filling cycle, and shut off automatically when correct volume has been delivered.

All parts of the nozzle assembly are of brass to avoid spark hazards, and are machined to close tolerances. Through use of this filling device, filling time for a five gallon can has been cut to 15 seconds. With previous equipment, 35 to 50 seconds were required, depending upon the foaming characteristics of the liquid.

The development was carried forward under the direction of T. H. McCarthy, production engineer at the South San Francisco paint plant. The equipment has been in service for well over a year.

Two special nozzles used on the filling line at the DuPont plant in South San Francisco. The left-hand assembly is shown locked in its raised or off position, with nozzle withdrawn into the sleeves to close discharge ports. The right-hand assembly is lowered into the filling position. Note how the sleeve has entered the can. At the point where the collar stops its downward progress, the nozzle itself slides below the sleeve to uncover the discharge ports.



The Lab Helps Out In The Kitchen

"Did you know that chemical engineers are the happiest married professional group in the nation?"

I looked across the restaurant table into the sincere brown eyes of my fiance. He was young, tender, recently possessed of a degree in chemical engineering, and mine — all mine — at the end of two weeks.

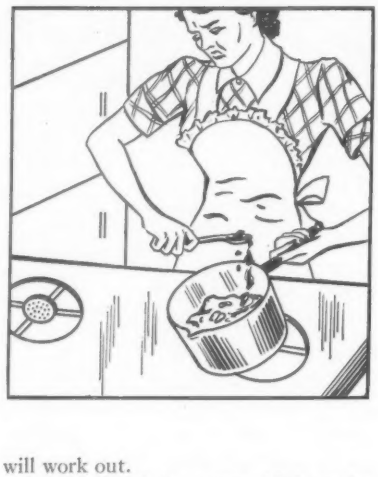
"No, really!" He began to protest, "I can see you don't believe it, but a poll that was recently . . . . "

And I thought of white lace as he launched into a description of his new job in an industrial finishes plant. I nibbled at my salad, wondering if the white orchids or a bouquet . . . And so we were wed!

With the assurance that we were among the happiest married professional group, we gaily settled down after the honeymoon to the "workaday" world. The mornings were a hasty-grub-rustling, off-to-the-job affair for both of us. At five-thirty we would meet at the market, leisurely make a supper selection until five-forty-five, then back to our blue heaven. Heaven, in this case, was a furnished garret apartment in a city strange to me — strange to many people, as a matter of fact — called Newark.

The combined bedroom and living-room was done in atrocious antique maple of the sleazy period and the kitchen equipment predated it. To the three-burner square box of iron I prayed daily, as though to my lares and penates, to reward us with palatable meals. To the bird-bath (that was the landlord's excuse for a sink) we both directed only malice and naughty words.

Every young bride begins marriage with some degree of deficiency. I started with two distinct handicaps. I'd never studied even the most elementary chemistry, and I had never cooked! In fact, I didn't know a polymer from a potato-masher. I still have rough moments, but I'm getting a cook-book for my birthday, so I'm sure things



will work out.

My husband is a rare bird — he enjoys his work; so much so that he integrates it with *his* daily living — and *mine* too! The first bad jolt I had came over a pot of chocolate pudding.

It was the evening after I'd finally gotten potatos done in time to be served with the meat. In order to celebrate this feat, I decided to attempt a dessert beyond the stage of flipping a can-opener. Next step, I felt, should be one involving no more than two ingredients. What would be more natural than rich, creamy (packaged in the carton) chocolate pudding. At least, that's what I thought I was making.

With my husband happily reading his evening newspaper in the east wing, I busily began to read the directions on the package. You know, one of those "2 cups of milk slowly added to contents" deals. With a normal dinner-hour out of the question and tempus fidgiting all over the clock, I decided to hasten the operation, dump everything in the pot, and stir fast. Then things began to happen. From over my shoulder came an unhappy roar:

"Dispersion!"

I looked up sharply, "No, dear, chocolate pudding," I explained. He took the spoon and ran it through the brown clumps that had begun to form in the milk.

"See," he glowered, "it's beginning to flocculate." And with that he abandoned the spoon, pot, and mixture to fate and/or my ministrations.

"Don't be silly!" I said. "All you have to do is squish these lumps against the side. See!" I countered, demonstrating with great heartiness all the while. These frantic movements he watched in silence, arms folded, a pitying smile deep from within playing about his lips. I hated him! After ten very long minutes, I wordlessly stopped stirring, threw the lumpy mess into the garbage, washed the pot, and reached for a can of fruit.

Husband and chemist came alive! He unfolded his arms and reached into the cupboard for another box of chocolate pudding (I had optimistically bought several). Then it began. The laboratory merged into the kitchen and I could do nothing but stand there, trapped and tortured.

"You see, honey," he said, with that peculiar kindness that can unwittingly kill, "it's the same as when we make a dispersion or grind at work. We want all of the little particles well mixed so they won't clump together, and. . ." And more of the same in the calm tone reserved for infants and idiots. All the while my gaze was fixed with horrified fascination on the spoon creating a smooth, appetizing mixture from the powder and slowly poured milk.

I guess he never did understand why I wouldn't let a morsel of his finished product pass my lips that night — why, indeed, I refused to make dinner, and and ended by coldly suggesting "Pappy's", otherwise known as "last resort inn."

As time passed and I became more at home in the kitchen, I actually began to look forward to throwing open the

(Turn to page 68)

Exposition on New Products To Be Held in NY, June 15-19

An international exposition, the first of its kind held anywhere, planned to draw attention to the future needs of industry, will be held June 15-19, 1953, at the Grand Central Palace in New York, according to Clapp & Poliak, Inc., New York.

Called "Exposition of Basic Materials for Industry" and described as "a new link in the industrial communications systems" by Don G. Mitchell, president, Sylvania Electric Products, Inc., the exposition will present under one roof the whole range of new materials being developed by industry and needed for product development, the release said.

Mr. Mitchell is chairman of the board of sponsors which consist of top executives of twenty major companies.

Simultaneously with the exposition, a series of technical conferences will be conducted to discuss the properties and potentialities of new materials important to industry.

More than 15,000 executives concerned with design and development of products are expected to attend from every major manufacturing center in the world.

Describing the exposition as one which will "open up the world of tomorrow for consumers everywhere," Mr. Mitchell declared that even large staffs of engineers are finding it impossible to keep abreast of vital new discoveries.

Besides the emphasis on new materials, the exposition will demonstrate new uses for standard products, such as wood, metals, alloys, plastics, ceramics, textiles, leather, rubber, cork and glass. Product components and accessories will be featured along with old materials in new forms such as laminations, coatings, combinations, and sandwiches.

Admission will be restricted to management executives, project engineers, product designers, materials engineers, production experts, research men, and sales and marketing executives.

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Inland Steel Container Company Becomes a Division of Parent Firm

The Inland Steel Company, 38 S. Dearborn St., Chicago 3, Ill., has announced that the Inland Steel Container Co., a subsidiary corporation, has been made a division of its firm.

Inland Steel's new division has major plants in Chicago, Jersey City, New Jersey, and New Orleans, Louisiana.

Ground-breaking ceremonies for the Peerless Printing Company's new production building were held recently. The new addition, a one-story structure of 4,500 square feet, will house the firm's facilities for the production of dry dispersions. Peerless Printing, located in Philadelphia, is a unit of Acheson Industries, Inc. Peerless executives looking on at the proceedings are, left to right: William F. Polfus, Director of Product Research; J. S. Thome, Assistant General Manager; Raymond Szymanowitz, Vice President of Acheson Industries; Albert H. Gere, President and General Manager of Peerless Printing Ink Company; Nicholas J. Caggiano, Controller; Albert Glueck, Production Supervisor, and R. L. Mortimer, Plant Engineer at Peerless.

Troy Chemical Co. Appoints Two Sales Representatives

The Troy Chemical Company, 2589 Frisby Ave., New York 61, N. Y. manufacturers of specialties and additives to the surface coating industries, has appointed Dowdy Brothers as their representatives in the Trenton, Philadelphia, Baltimore and Washington, D. C. territories.

Dowdy Brothers are located in the Wilford Building, at 33rd and Arch Streets, Philadelphia, Pa.

Troy Chemical has also announced the appointment of Gerald Fahey as its representative in the Detroit, Mich., territory.

Mr. Fahey is located at 6432 Cass Ave., Detroit 2, Mich.

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Open House to Be Held at New Morris Paint Plant, April 15-17

An Open House will be held at the newly constructed Morris Paint Company factory at 16th and So. Railroad Ave., East St. Louis, Ill., on April 15-17, from 2 to 5 p.m. each day.

Sales meetings will be held each morning for all Morris Paint sales personnel, distributors and dealers.

A complete tour of the plant will be made each afternoon, with explanations covering the newest equipment used in the manufacture of all types of paints and specialized industrial.

All-Purpose Vinyl Film Standard Circulated for Industry Approval

A recommended Commercial Standard for general purpose vinyl plastic film is being circulated to the industry and the public for written acceptance, the Commodity Standards Division of the United States Department of Commerce announced recently.

The Standard is based on a proposal by the Society of the Plastics Industry and was modified to meet the desires of the majority at an industry conference on November 18, 1952.

Methods of test and requirements of general purpose plain or embossed vinyl plastic film, to insure satisfactory products for consumer use, are covered in the Commercial Standard.

The requirements and methods of test specify thickness tolerances, yield per roll, width tolerances, shrinkage at elevated temperatures, contamination, appearance, cracking, tensile properties, tear resistance, volatility of plasticizer, water extraction, low temperature impact and flammability.

Suggested forms for declaring compliance with the Standard and an identifying hallmark are included.

Mimeographed copies of the Recommended Commercial Standard, which is identified as TS-5165, may be obtained as long as the supply lasts by writing to F. W. Reynolds, Commodity Standards Division, U. S. Department of Commerce, Washington 25, D. C.

FATIPEC To Hold Its Next Meeting In The Netherlands In May 1953

The next general meeting of the FATIPEC will be held at Noordwijk on Sea, in The Netherlands, between May 18-23, in 1953, it was decided at the Federation's Course of Studies held in Paris in June 1951, a FATIPEC bulletin said recently.

The Dutch Association for Paint-technicians (N.V.V.T.) will act as hosts for the pending Congress, the bulletin said, and preparations for the meeting are already underway to insure a useful and agreeable course for the visitors.

A general Organization Committee has been formed consisting of the following: Dr. J. Hoekstra, chairman FATIPEC and N.V.V.T., Eindhoven, president; Dr. W.J. Nijveld, secretary N.V.V.T., c/o Pieter Schoen & Zoon, 39 Oostzijde Zaandam, secretary; Dr. C. P. A. Kappelmeier, chairman of the Editorial Staff of the *Verfkroniek* Oegstgeest; Dr. A. M. Mees, representative of the V.V.V.R. (Association for the Research of Paints), Sassenheim; Dr. Ir. C. Van Meeuwen, representative of the V.V.V.R., Rotterdam-Overschie, and Dr. H.W. Talen, director of the Paint-Research Institute T. N. O., Rijswijk, near Delft.

This Committee, which is now outlining plans for the pending Congress, has appointed a sub-committee for the organization of the scientific and technical activities to go on at the meeting. The sub-committee comprises the following: Dr. H. W. Talen, Verfinstituut T.N.O., Post Box 49, Delft, president; Dr. W. J. Nijveld, Zaandam, 39 Oostzijde, secretary; Dr. R. S. Dantuma, Sikkens'-Lakfabrieken Ltd., Sassenheim, and Dr. Ir. C. van Meeuwen, Molijn & Co. Ltd., Rotterdam-Overschie.

The sub-committee, called the Technical Organization Committee, will co-ordinate the scientific contributions for the coming Congress in order to obtain a lecture program of interest to all.

"Physical Examination of Paints in Relation to Their Performance" is the general subject chosen for the Congress by the scientific and technical Committee of the FATIPEC.

A great number of methods are described in the available literature for the study and testing of the physical and mechanical properties of paints and layers of paints. However it's remarkable that there's so little written matter on the performance of paint.

Only a few examples are given, at best, when an apparatus for the determination of wear is described. More important, the examination seldom discloses in which way, the practical use of such a paint, is related to wear.

It is the Congress's intention therefore to emphasize the practical value of various test-methods.

In announcing details of this meeting, Dr. W. J. Nijveld, secretary of the Congress said:

"A definite classification in sections will naturally be only possible after some kind of impression about the number of announcements which will be made, and about the available time. In principle it is proposed to make the number of sections not too great, in order to enable the largest possible number of congress-visitors to attend the lectures and to participate in the discussions.

As a schematical classification which also serves as a guidance for the subjects to be treated, is therefore proposed:
Section 2 — Physical test of a liquid paint.

"This test comprises i.e. viscosity, flow, etc., and it is intended to treat these properties with respect to the ultimate result—that is to say with respect to the resulting, fixed, dried layer. Also the transition of liquid paint to a firm layer (drying process) may be included. In general these properties will not quite determine the behavior of the film over a long period of time, in contrast to those of the following sections.
Section 2, "Rheological" properties of dry films of paint.

"This heading may comprise optical, acoustic and electrical properties, and the determination thereof.

"Within this definition may also come the "osmotic" properties: water-absorption, permeability, diffusion, etc.

"It is self-evident that the above classification is tentative and should be taken in its wider and freer sense.

"It is intended to have the lectures published and to send these publications beforehand to the participants of the Congress. In this connection the complete texts of the lectures in French, English or German language, are expected not later than February 1st, 1953, provided with a summary and c.g. the necessary figures and tables.

"However, the Technical Organization Committee will be pleased to learn before that date the names of the authors and to receive an outline of their lecture, in order to promote a proper co-ordination."

Further information with respect to division of the Congress will Follow.

All suggestions and communications about the above mentioned points should be sent to the Technical Organization Committee, c/o Dr. W. J. Nijveld, 39 Oostzijde, Zaandam, Netherlands.

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Raybo Appoints Sales Agents for North and Middle Atlantic States

The Raybo Chemical Company of Huntington, West Virginia, has announced the appointment of Superior Materials, Inc., to represent the firm's line of chemicals in the North and Middle Atlantic States.

Included in Raybo's line of chemical products are additives used in the paint and allied fields.

Superior Materials has been operating as a raw materials sales organization for the past nine years. Warehouse stocks are carried in Boston, New York and Philadelphia.

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Steel Valve Firm Incorporated In National Lead's Metal Dept.

The National Lead Company will operate its newly-acquired Pioneer Alloy Products Division as part of its metal department.

Pioneer Alloy produces corrosion-resisting valves, widely used in the chemical processing and refining industries.

This production will supplement National Lead's line of lead valves.

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8 Million Dollar Acrylic Monomer Plant Built Near Houston, Texas

An eight million dollar petro-chemical plant at Dear Park, near Houston, Texas, has recently been completed and put into operation by the Rohm & Haas Company.

The new plant will be used for the production of acrylic monomers, raw materials used in the manufacture of the firm's Rhoplex and Acryloid resins for coatings , and other products.

An entirely new process will be used, which employs as its raw materials acetylene, carbon monoxide, and various alcohols, according to Louis Klein, vice-president of Rohm & Haas.

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Peter E. Davis Forms Pigment Distributor Firm with NYC Office

Peter E. Davis, formerly vice president of the Ansbacher-Siegle Corporation, has announced the formation of Davis Color & Chemical, Inc., distributors of dry and flushed pigments, allied products, and chemical specialities.

The New York warehouse and office is located at 185 Christopher St., New York 14, N. Y.

Newport Industries Constructing Tall Oil Processing Plant in Ala.

A $2,700,000 tall oil processing plant is being constructed by Newport Industries Inc., at Bay Minette, Ala.

Raw material from kraft paper mills in the area will be processed into a number of products used in the manufacture of soap, lubricants, resins, paints and for other industrial uses.

The Rust Engineering Company of Pittsburgh and Birmingham, are the contracters for the new plant.

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United Wallpaper, Inc. Appoints Baker Sales Agent in Five States

The M. H. Baker Company of Minneapolis, Minn. has been appointed a sales representative for the Pigment Color Division of United Wallpaper, Inc. for the states of Iowa, Minnesota, South Dakota, North Dakota and Nebraska.

Baker also represents various resin, chemical and raw material companies in the same area.

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Amer. Metallic Chemicals Begins Production of Manganese Dioxide

American Metallic Chemicals Corporation has started commercial production of electrolytic manganese at its plant in Portland, Ore.

Manganese dioxide is used as a drier in paints and varnishes, among other things.

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Sheffield Chemical Co. Formed As National Dairy Subsidiary

The National Dairy Products Corporation of New York, has announced the formation of the Sheffield Chemical Company as a subsidiary.

Sheffield Chemical will carry on the work previously handled by the chemical division of Sheffield Farms Company.

J. G. Brereton, is president and treasurer of the new concern. He will be assisted by J. R. Borst, named vice president and production manager; F. A. Daldauski, named secretary and technical director, and James D. Sheridan, named sales manager.

Sheffield Chemical, with headquarters at Norwich, N. Y., will make products for use by the chemical and other industries. The firm now distributes lactic acid and stabilizers for Latex-base paints.

View of the McDanel Refractory Porcelain Company's New Laboratory.

McDanel Firm Completes Addition To Its Beaver Falls, Pa. Plant

The McDanel Refractory Porcelain Company has just completed a 4000 sq. ft. addition to its Beaver Falls, Pa. plant to house a modern research laboratory.

According to Daniel McDanel, the new addition is part of the firm's modernization program started in 1952.

Another step in McDanel's reconstruction program was the replacement of the old periodic Kilns with more modern Kilns capable of taking care of the company's exapnding production.

The McDanel Company manufacturers industrial porcelains for the paint and chemical fields among others.

Pennsalt Announces Development Of Anti-Corrosion Coating System

A new system of anti-corrosion coating, developed after three years of testing in company plants, has been introduced by the Pennsylvania Salt Manufacturing Company.

According to Pennsalt maintenance engineers, the system, based on the use of formulated neoprene coatings, has resulted in savings of up to 50 per cent per square foot in maintenance and coating costs at the firm's plants.

The engineers claim that to stand up in service, a coating has to be built up to a thickness of at least 5 mils, regardless of its corrosion-resistance, to be especially effective in covering welds, beads, seams and edges where coatings most frequently failed.

They added that the tests had also revealed that it is uneconomical, from the labor and time standpoint, to apply more than three coats including the primer. Therefore the neoprene coatings were formulated to attain the proper thickness within three coats.

Although the overall initial costs of using the new system appears to be higher than other methods, Pennsalt maintenance engineers say that measured over several years, the system cost about half that of other systems.

Pennsalt also has announced the development of a system of planned inspection and repair service.

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Committee Chairmen Appointed for 31st Annual Meeting of the FPVPC

Names of the Committee chairmen in charge of arrangements for the 31st Annual Meeting of the Federation of Paint and Varnish Production Clubs, have been named announced.

Eugene H. Ott of the Cleveland Club, will plan the business sessions of the meeting scheduled for October 29-31, at the Chalfonte-Haddon Hall, Atlantic City, N. J.

Hugh A. McConaghie of the Philadelphia Club, is chairman of the Paint Industries' Show Committee. The Show will run from October 27 to October 30.

The Host Committee is headed by Fred M. Damitz of the New York Club. Sub-Committee chairmen include A. J. Bruning, Baltimore Club, Registration Committee; W. J. Greco and W. E. Santoro, New York Club, Floor Committee; A. H. Stover, Philadelphia Club, Banquet Committee; J. P. Harner and D. W. Munson, Philadelphia Club, Dance Committee; and Mrs. R. W. Charlton and Mrs. S. R. Mountsier, Jr. as Co-Chairman of the Ladies Entertainment Committee.

Philip E. Calo Company Opens New Office in Minneapolis, Minn.

The Philip E. Calo Company of Chicago has opened a new branch office in Minneapolis, Minn., at 1415 First Ave. South.

Kelsey M. Countryman, former sales promotion manager with the Burma Shave Company, will be in charge of the office, which will handle a complete line of raw materials for the paint and varnish industries.

In his new post, Mr. Countryman will coordinate sales and service activities with the Chicago office.

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Resyn Corporation Increasing Alkyd and Copolymer Production

The Resyn Corporation of America has announced that it's increasing facilities for the production of quality alkyds and copolymers, and that in the near future the firm will be in a position to produce two tank cars of finished resins per day.

Also announced was the appointment of the A. C. Mueller Company, 616 St. and Clair Ave., N. E., Cleveland 14 Ohio, as exclusive sales agents in Cleveland and northern Ohio, including everything north of U. S. Route No. 40.

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Philips X-Ray Diffraction School Scheduled Apr. 20-24 in New York

Program details have been announced for the Fourteenth Semi-Annual X-Ray Diffraction School to be held at the application laboratory of North American Philips Company, Inc., South Fulton Ave., Mount Vernon, New York during the week of April 20-24, 1953.

The April 20th meetings will be directed by Professor I. Fankuchen, Brooklyn Polytechnic Institute, who will lecture on *The Basic Principles of X-Ray Diffraction*.

Part of the afternoon session will be given over to questions and answers and to laboratory working work dealing with diffraction cameras, Diffractometer (Geiger-counter X-Ray Spectometry), X-Ray Spectrograph fluorescence analysis), and techniques of specimen preparation.

On April 21, Professor Fankuchen will lecture on the *Applications of X-Ray Diffraction*, including New High and Low *Temperature Camera Techniques*. Another question and answer session and laboratory period will follow the lecture.

The following day, Dr. William Parrish, Philips Laboratories, Inc., will lecture on *X-Ray Diffraction Techniques Using the Diffractometer* (Geiger-counter X-Ray Spectrometer). He will also cover X-Ray Powder Camera techniques and some aspects of the X-Ray Spectrograph.

On April 23, Dr. Herbert Friedman, U.S. Naval Research Laboratory, will lecture on the *X-Ray Spectrograph*. This will cover pick-up with Geiger-counters, proportional counters, scintillation counters and ionization chambers.

The last day, April 24, will be devoted to field application work. Among the speakers who will discuss the subject are: Dr. Ray Pepinsky, Penn State; Dr. Martin Buerger, MIT and Dr. Richard Bear, MIT.

In addition to regular daytime sessions there will also be meetings on Monday. Tuesday and Wednesday at which special problems and applications will be given attention.

It is recommended that those who wish to attend make arrangements as soon as possible since registration is limited to 100. There is no registration fee.

Last year the Philips X-Ray Diffraction School held last October was attended by 147 scientists from all over the United States and Canada.

Chemists analyze color problems of coating manufacturers at Hilton-Davis service laboratory.

Hilton-Davis Chemical Opens Customers' Service Laboratory

A new Customers' Service Laboratory, designed to aid the protective coatings industry meet individual color requirements, has been officially opened by the Hilton-Davis Chemical Division, Sterling Drugs, Inc.

To insure maximum service, Hilton-Davis recently installed the world's largest flushing machine for blending colors.

The laboratory staff, in addition to analyzing color problems for manufacturers, will conduct control uniformity tests on all colors prior to shipment.

Norman Moore has been placed in charge of the Laboratory, which is equipped with color-dispersing apparatus, a spray booth, a G-E spectrophotometer for scientific determination of color values, fadeometer and weatherometer units, and other research facilities.

•

Jack Zucker Lauded At Painting Contractors' Testimonial Banquet

Jack Zucker, president of the Painting and Decorating Contracters of America for the past three years, was lauded for his contributions to the paint industry at a testimonial banquet held in the Biltmore Hotel, New York City, February 25.

Joseph F. Battley, president of the National Paint, Varnish and Lacquer Association made the address. The occasion was the annual convention of the PDCA.

Mr. Battley acclaimed the guest of honor for his great efforts to have new and more efficient methods adopted by the PDCA.

He added that Mr. Zucker had done a wonderful job in all the posts he has held.

Chemical Institute of Canada Schedules 36th Meeting June 4-6

About 1,000 delegates are expected to attend the 36th Annual Conference of The Chemical Institute of Canada, to be held June 4-6, with headquarters at the Prince Edward Hotel in Windsor, Canada. All technical sessions will be held in the modern Science Building on the campus of Assumption College.

A number of scientific and technical groups in Detroit are cooperating with the Windsor Conference Committee on what will be the largest chemical event in Canada this year.

Among the special events scheduled are the address of the C. I. C. Medallist, the Westman Memorial Lecture, the presentation of the Russel J. Eddy $1,000 Scholarship, and the annual business meeting at which the newly-elected president for 1953-54 will be introduced.

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Epifanes Firm To Produce Line Of Marine Paints and Varnishes

The "Epifanes" line of marine paints and varnishes, developed and produced in Holland, is now available for the first time from stock in the United States.

A newly formed firm, the Epifanes Marine Finish Company, 17-12 Road River Road, Fairlawn, New Jersey, will produce the paint in this county. Thomas Van Yperen, who formerly conducted a paint business, now operated by his son, in Hawthorne, N. J., is president of Epifanes, and W. Ewart Stephenson is vice-president and treasurer.

The Epifanes line, made from a paint formula developed more than 50 years ago by a Dutch chemist, includes undercoat paint, boat finishing paint, boat varnish and seashore house paint.

•

Reichhold Chemicals, Inc. Sets Up Manufacturing Div. in Mass.

Reichhold Chemicals, Inc. has set up a manufacturing division at Ballardvale, Mass., to produce its line of synthetic resins and basic industrial chemicals used by the region's paint industries.

The move was made to establish Reichhold as a "local" manufacturer in the area, according to Paul L. Swisher, vice president in charge of sales and advertising.

Odor Problems To Be Discussed At 2-Day Conference April 23-24

A two-day conference, designed to bring together outstanding investigators in academic and research laboratories working on the odor problem, has been arranged by the American Society of Heating and Ventilation Engineers and the New York Academy of Sciences.

The conference on "Basic Odor Research Correlation," to be held April 23-24, at the Barbizon Hotel, New York City, will be attended by chemists, physicists, experimental psychologists, as well as industrial scientists working in the fields of cosmetics, tobacco, food, and the manufacture and transportation of chemical products.

According to the researchers, conditioned air, far from being "free" is costly to the degree that energy has been devoted to its heating, cooling and cleaning, and hence must be conserved as far as possible in the interests of economy.

They added that when conditioned air is recirculated within an occupied space, it takes up odors from people, furnishings, foods, tobacco and other substances, and questions.

The perception of such odors, the effects of environmental factors on their intensity and methods for their control, of fundamental interest to the air-conditioning, heating refrigeration, and ventilating industries, are being further investigated by the ASHVE.

Dr. Albert R. Behnke, United States Navy, will preside as General Chairman of the conference.

On Thursday, April 23, speakers will discuss the following topics: *Basic Types of Industrial Odor Problems, Problems of Odor Research from the Viewpoint of the Scientist, and the Olfactory Process, Status of Present Knowledge.*

The Friday April 24, sessions, will cover the status of subjective and objective measurement techniques and experimental studies in odors.

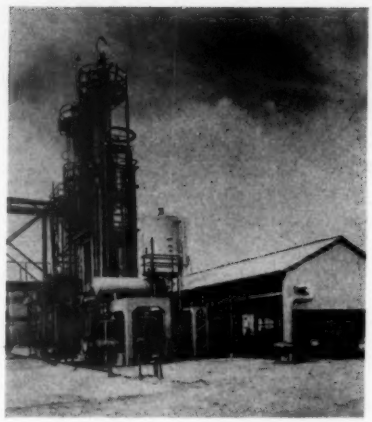
•

Pennsylvania Falk Opens New Sales Offices in Pittsburgh

Louis J. Reizenstein, president of the Pennsylvania Falk Chemical Company, has announced the opening of new general sales offices in the Farmers Bank Building, Pittsburgh, Pa.

According to Mr. Reizenstein, the firm's expanded sales activity is the result of increased production of Piccopale and other resins, used in the protective coating field.

Mr. Reizenstein was formerly general manager of the Falk Division of Cargill, Inc., a firm with which he has been associated for many years. He still is active on its consulting and advisory staff.



New Shell Epichlorohydrin Plant

Shell Chemical Corp. Purchases Epichlorohydrin Plant in Texas

The Shell Chemical Corporation has purchased a new epichlorohydrin plant in Houston, Texas. Epichlorohydrin is a major component of epoxy resins, and is also used in adhesives and chemical intermediates.

According to Jan Oostermeyer, president of Shell, a part of the new epichlorohydrin production will be tied in with the expansion of Shell Chemical's facilities for manufacturing Epon resins.

He said Epon resins are now in tight supply and will remain so until next fall when Shell Chemical brings in its new bis-phenol and Epon resin plants at Houston. Bis-phenol is produced from acetone and phenol, both of which are petroleum derivatives.

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Pittsburgh Plate Announces Four-Year Science Scholarship

A four year science and engineering scholarship has been set up by the Pittsburgh Plate Glass Company for the outstanding high school senior in Mt. Vernon, Ohio, site of the firm's largest window glass producing plant.

Although the initial $4,000 scholarship is currently limited to Mt. Vernon, if it proves successful, similar scholarship programs may be extended in the future to other Pittsburgh Plate plant locations.

An Award Committee, headed by Dr. Webster N. Jones, dean of the College of Engineering and Science at Carnegie Institute of Technology, will name the first scholarship winner sometime in the spring. Other committee members are Dr. Joseph H. Koffolt, chairman of the engineering department of Ohio State University, and Robert B. Brown, Kenyon College, secretary.

News Of Production Club Meetings

C-D-I-C

The 327th meeting of the C-D-I-C was held at Suttmillers, Feb. 9. Speaker of the evening was Dr. R. L. McCleary of Thompson Weinman Company who spoke on *The Use of Calcium Carbonate Pigments in Outside House Paints.*

Dr. McCleary's talk was a progress reported of the exposure work done with Calcium Carbonate in various pigment formulations and comparative formulas. The talk indicated the scope of the work and the interim conclusions. Charts and slides were distributed to members at the end of the talk.

The 328th meeting of the club was held at the Hotel Alms in Cincinnati, March 9.

In line with the club's educational program, Dr. Hoke Greene of the University of Cincinnati and Dr. Richard Garascia of Xavier University, were invited to discuss possible educational programs for paint men.

Dr. Greene said it was possible that some specialized courses could be given at the University's evening courses. Dr. Garascia suggested that paint organizations submit subjects for possible entry in Xavier's curriculum.

Speaker of the evening was Fred Ball of Eastman Chemical Products, who spoke on *A New Polymer*. The chemical being Cellulose Acetate Butyrate ½ second. This is a filtered product in powder form designed for coating and lacquer operations.

Mr. Ball discussed formulations for coatings on wood, steel, brass, paper and plastic. Formulations were also demonstrated for synthetic leather, adhesives and hot melts.

Slides and exhibits were used to illustrate the talk.

Detroit

A meeting was held March 24. Speakers of the evening were Floyd Seel and Edmund Pratt, Lighting Engineers from the Detroit Edison Company. They spoke on the *Importance of Color Selection Under Artificial Illumination.*

Northwestern

Plans were made for the Club's 25th Anniversary meeting at the regular March 6th session. John Rouse of the 1953 Technical Committee reported that the subject of the 1953 paper would be: *Curing Agents for Epoxy Resins.*

After a short recess the speaker of the evening, T. C. Patton, Chief of Technical Services for the Baker Castor Oil Company, was introduced. The subject was *Kauri Reduction and it's Prediction and Interpretation.*

There has been much discussion and criticism of Kauri Reduction tests. This test is a measure of elasticity and toughness and performs the same general function as the fingernail or knife test and the mandrel test. However, it is the only quantitative test available and much of the work done in preparing the paper had to do with proper use of the test and the preparation of a chart by means of which KR values can be closely predicted. It was pointed out that there are many test variables, such as the type of panel used, the temperature and relative humidity under which a test is conducted as well as variations in technique, which can produce almost 20% variation in results. Also there are variables in the vehicle being tested such as non-volatile and viscosity, oil length and type of resin, selection of driers, thinners, etc. As a result of testing large numbers of vehicles consisting of average drying varnish oil at various oil lengths with all the typical resins, a KR chart was developed. This is called an alignment chart since a straight line made to connect any two points which are pertinent to a given problem, intersects other points which correspond to answers to the problem. By use of the chart, predictions can be made as to what oil length varnish using one type of resin can be equivalent in KR value to some other varnish using a different type of resin.

Resin at 25 gallon oil length would show a KR reading of 110. The same KR reading using a penta resin would call for a 40 gallon oil length. Other uses of the chart were pointed out.

Chicago

The regular monthly meeting was held March 5, at the Furnature Club. Speaker of the evening was Charles Gardner of the Advance Solvents & Chemicals Corporation, who discussed

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Navy Abandoning Paint Production; Will Buy Standard-Type Paints

The Navy is going out of the paint business, informed sources said recently. Up to now the Navy manufactured most of the paint it used.

It is expected that Secretary of the Navy Robert B. Anderson will make an official announcement in the near future.

The decision means the shutting down, or at least sharp curtailment of activities at the department's two huge paint plants at Mare Island, Calif., and Norfolk, Va.

A Navy Department spokesman said the present plan is to cease all paint production operations except those involving special or secret formulas which cannot for security or other reasons be brought from private industry. He said, however, that all enamels and other standard-type paints certainly will be procured from industry.

The Secretary's decision was made in light of a report by a special industry task group which was asked to study paint operations and recommend a course of action to the Secretary.

The report, submitted January 13, concluded that the Navy should get out of the paint business.

According to the group, the Navy plants were economically unsatisfactory and a strategic liability since they were both located on coasts and could be easily destroyed by an enemy bombing operation.

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1952 World Output of Flaxseed Estimated at 134,600,000 Bushels

World production of flaxseed in 1952 is estimated at 134,600,000 bushels, on the basis of the most recent information available to the Office of Foreign Agricultural Relations. The figure represents a nine per cent increase from the output in 1951.

Production in North America, which comprises 34 per cent of the world's output, totaled about 45,900,000 bushels. The estimate represents a decline of about one million dollars bushels from last year. A decrease in United States and Mexican production offset a sharp increase in Canadian output.

Sheets of lithographed metal plate used in the manufacture of cans are shown coming out of the tunnel-like baking ovens at American Can plant. The sheets are baked for 10 min. at temperatures from 274 to 400 deg. F. Baking hardens the protective varnish coating which is applied after the design is printed and helps to prevent marring and soiling of labels during fabrication.

Lithographic Color Control System Developed at Canco

A lithographic color control system through the use of high precision optical instruments, has been developed by the American Can Company.

The system is expected to improve the overall efficiency of Canco's 34 lithographing units.

Original research work on control was done with an involved optical instrument known as the recording spectrophotometer. This instrument records the relative reflectance of each color in a lithographed label at all wave lengths of light. It automatically produces a "reflectance curve" by which color or colors in the label may be recorded and compared to other curves obtained on a similar label in the future.

However, because of its complicated mechanism, size, and high cost, the recording spectrophotometer was not suitable for routine factory operation. Instead smaller units called "reflectometers" were decided upon and are now used at several Canco plants.

Boston Material Handling Engineers Install Officers

The recently organized Boston Chapter of the Society of Industrial Packaging and Materials Handling Engineers, the 15th chapter in the nationwide SIPMHE organization, installed its first set of officers and directors March 3.

Officers of the Boston Chapter are: Frances Shaughnessy, Boston Ordinance District, president; John J. Reynolds, Jr., Allied Container Corp., Hyde Park, Mass., vice-president; Vincent McCann, Atlantic Excelsior Corp., Boston, secretary; Max Hill, Boston Ordinance District, treasurer.

The officers were nominated by a committee named by Shaughnessy after his appointment several weeks ago by SIPMHE national headquarters in Chicago as temporary chairman of the group then forming.

42 Speakers Scheduled for Materials Handling Conference

A group of 42 speakers, representing many of the outstanding industries in the countries, will head workshop seminars at the Materials Handling Conference, to be held concurrently with the Fifth National Materials Handling Exposition at Convention Hall, May 18-22, in Philadelphia.

The American Material Handling Society is conducting the Conference which will cover five basic aspects of material handling.

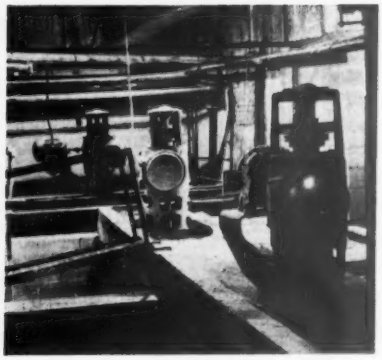
The five topics, each of which will be the subject of a seminar on each of the three days, include Handling in Process, Warehousing and Shipping, Packaging for Improved Handling, Bulk Handling and Requirements for Organization, Study and Analysis.

More than 25,000 visitors from 40 countries are expected to attend the Exposition, which will be the largest capital goods show held in the United States in 1953.

PIGMENT IS ADDED to vehicle. Note special off-center mixing angle, which provides rapid uniform mixing throughout the tank.

FULLY UNIFORM PRODUCT—only 3 minutes later. Mixer shown is standard ½-HP LIGHTNIN Portable Mixer. Larger units are made for tanks of any size.

Tint 75 gallons in just *3 minutes*



FOR BIG MIXING JOBS, LIGHTNIN turbine and paddle mixers are supplied in hundreds of power-speed combinations, for open and closed tanks. Up to 16 speeds, easily interchangeable. Sizes 1 to 500 HP.

Three short minutes from pigment addition to full color uniformity.

This is just one example of the rapid, thorough mixing you get when you let a LIGHTNIN engineer serve you on paint mixing.

He may be able to help you cut mixing time to a fraction of what it takes you now.

Tests show that the *right kind* of mixing can cut your horsepower requirements, too. (In many plants, the job can be done with as little as 1/10 the power actually being used.)

You get results like these—fully guaranteed—with LIGHTNIN Mixers. Over 100 models are available, to meet your needs exactly.

The LIGHTNIN Portable Mixer shown above is easily changed from tank to tank. It swings to any angle, for correct mixing or easy cleaning.

More than 30 portable models are available, with electric or air motors to match your conditions. Sizes ⅛ to 3 HP.

If you want fluid mixing that's *guaranteed* to do the job right, call in your LIGHTNIN sales-engineering representative today. Or write us for full information.

Lightnin® Mixers

Get these helpful LIGHTNIN Catalogs

This library of mixing information is yours for the asking. Catalogs contain helpful data on impeller selection; sizing; best type of vessel; valuable installation and operating hints; complete description of LIGHTNIN Mixers.

MIXCO fluid mixing specialists

MIXING EQUIPMENT Co., Inc.

182 Mt. Read Blvd., Rochester 11, N. Y.

In Canada: William & J. G. Greey, Ltd., Toronto 1, Ont.

- ☐ DH-50 Laboratory Mixers
- ☐ B-75 Portable Mixers (electric and air driven)
- ☐ B-102 Top Entering Mixers (turbine and paddle types)
- ☐ B-103 Top Entering Mixers (propeller type)
- ☐ B-104 Side Entering Mixers
- ☐ B-105 Condensed Catalog (complete line)
- ☐ B-107 Mixing Data Sheet

Please send me the catalogs checked at left.

Name_____

Title_____

Company_____

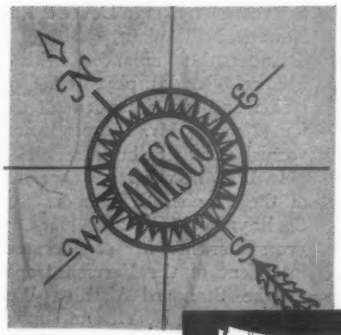
Address_____

City_____ State_____

HERE IT IS!

AMSCO Naphthol Spirits

a new solvent
with unusually high
flash point (102°F)
extra fast dry time
(335°F-D.P.)



manufactured under rigid control
to meet exacting specifications

complete technical data, prices
and samples available
on request

AMERICAN MINERAL SPIRITS COMPANY

230 North Michigan Avenue, Chicago 1, Illinois
155 East 44th Street, New York 17, New York
8600 South Garfield Avenue, South Gate, Los Angeles, California

NEWS DIGEST

J. A. Murphy

John A. Murphy, Naftone Eastern Division Technical Director, Dies

John A. Murphy, director of technical service for the Eastern Division of Naftone, Inc., died suddenly at his home in Hillside, N. J., March 7. He was 53.

Mr. Murphy, well known in the paint and varnish industry, began his career as a varnish maker in Devoe & Raynolds' Newark, N. J., plant.

Under the guidance of his father, Michael J. Murphy, chief varnish maker and superintendent at the plant for 42 years, Mr. Murphy learned the varnish and paint business.

In 1927, he was made superintendent of the Varnish Department at Devoe & Raynolds' Chicago plant. Three years later, Mr. Murphy became superintendent of the Varnish Department of the Standard Varnish Works at Staten Island N, Y., and subsequently was named general superintendent of the entire plant.

Mr. Murphy became associated with the Brooklyn Paint Company, Brooklyn, as plant manager in 1943. He joined Naftone in 1951, soon after it organized.

Mr. Murphy was president of the New York Paint and Varnish Production Club in 1943, and was made an honorary member last year.

He is survived by his widow, Mrs. Frances McGowan Murphy, two daughters, Mrs. Walter Chadwick and Mrs. Charles Lo Bianco, a brother, James A., and three sisters, Miss Anna K., Mrs. Jack Milne and Mrs. Albert Pearson.

high

AZO ZZZ-22

A high oil absorption Zinc Oxide having large Acicular Particles which gives heavy body

medium

AZO ZZZ-11

A medium oil absorption Acicular Zinc Oxide imparting exceptional weathering qualities to exterior paints

AZO ZZZ-33

A definitely Acicular type with a lower oil absorption, but chemically identical with AZO ZZZ-11 and AZO ZZZ-22

low

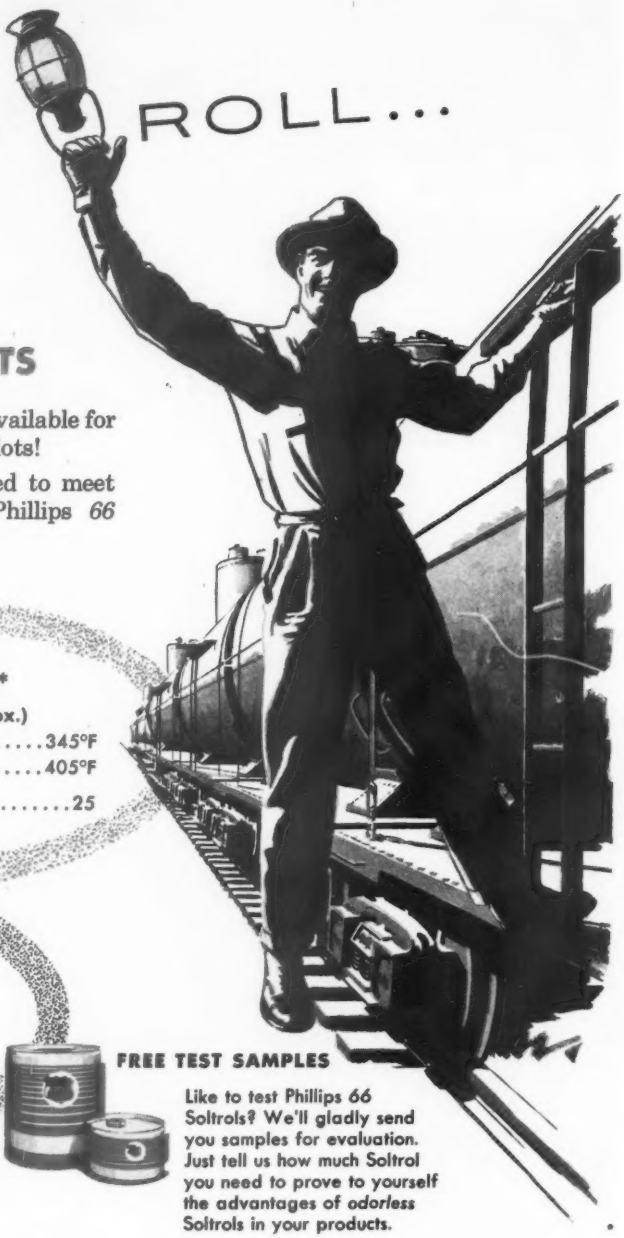
AZO acicular lead-free zinc oxide is a superior pigment available in a wide range of oil absorptions

The extra durability, the finer weathering qualities that Acicular Zinc Oxide gives to paint can be obtained with AZO Acicular Zinc Oxides available in a wide range of oil absorptions to meet your requirements

AMERICAN ZINC SALES COMPANY
distributors for
AMERICAN ZINC, LEAD & SMELTING COMPANY
COLUMBUS, OHIO • CHICAGO • ST. LOUIS • NEW YORK

AZO

READY TO ROLL...



ODORLESS MINERAL SPIRITS

High quality *odorless* mineral spirits now available for prompt shipment in tank cars or carload lots!

No waiting! No delay! We are prepared to meet your *full production requirements* for Phillips *66* Soltrol* in either of two boiling ranges:

PHILLIPS 66 SOLTROL-130*

Boiling Range (Approx.)

IBP.....345°F
EP.....405°F
Kauri Butanol Number.....25

PHILLIPS 66 SOLTROL-170*

Boiling Range (Approx.)

IBP.....410°F
EP.....450°F
Kauri Butanol Number.....23

FREE TEST SAMPLES

Like to test Phillips 66 Soltrols? We'll gladly send you samples for evaluation. Just tell us how much Soltrol you need to prove to yourself the advantages of *odorless* Soltrols in your products.

Soltrol-170* is specifically recommended in paints requiring longer wet edge and slower drying characteristics.

Write or wire today for complete information on these pace-setting odorless mineral spirits: Phillips *66* Soltrol-130* and Phillips *66* Soltrol-170*.

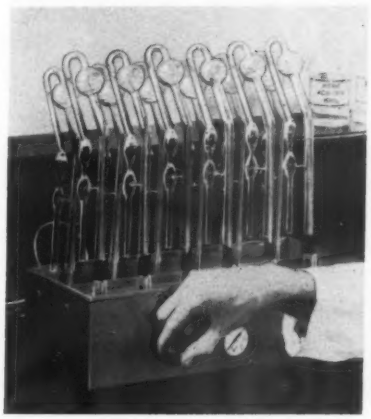
PHILLIPS PETROLEUM COMPANY
SPECIAL PRODUCTS DIVISION
BARTLESVILLE, OKLAHOMA

*A Trademark

NEW PRODUCTS & IMPROVEMENTS

A MONTHLY MARKET SURVEY

This section is intended to keep our readers informed of new and improved products. While every effort is made to include only reputable products, their presence here does not constitute an official endorsement.



FISHER

CLEANING APPARATUS
For Kinematic Viscometers

Viscometer cleaning and drying unit makes the task of cleaning and drying pipettes fast and convenient, and also reduces breakage, according to the manufacturer.

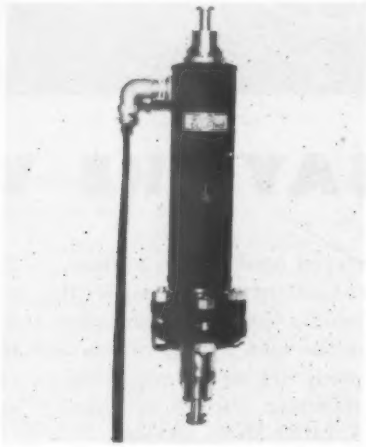
Used viscometers are placed over the machine's vertical capillary tubes. Each tube sprays the selected solvent into the viscometer at a pre-set pressure. Depressing a knob starts the solvent spray; releasing it stops the spray, substitutes an air blast that evaporates the solvent.

A pressure-regulator controls spray pressure to within close limits, producing, when desired, a "spurt" action effective in flushing out an oil coating the tube's interior. For further details, write to Fisher Scientific Co., 717 Forbes St., Pittsburgh 19, Pa.

DENSITY INSTRUMENT
Measures Liquid Density

Instrument is used for continuously indicating, recording, and/or controlling the density of flowing liquids.

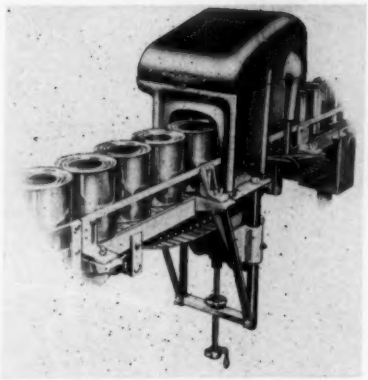
Known as the "Princo Densitrol," it is available in a number of different models. These are used for direct readings of liquid density at the pipeline point of sampling, to control density in such liquid processing operations as blending, mixing, proportioning, diluting or concentrating. For further details write to Precision Thermometer & Instrument Co., Dept. 7, 1434 Brandywine St., Philadelphia 30, Pa.



PRECISION

INSPECTION UNIT
Black Light Type

Portable black light inspection lamp is used in industrial or laboratory inspection operations for determining flaws, adulterations, detection of improper coverage of protective coatings, etc. This model B-50-H Minerallight is an intense 100-watt long wave ultraviolet unit operating on 110-volt AC current. Ultra-Violet Products, Inc., 145 Pasadena Ave., South Pasadena, Calif.



BARRY-WEHMILLER

MARKER
For Containers

For marking metal or glass containers filled with the product prior to shipment this marker is recommended. It is operated by the movement of containers along the conveyor line. No outside power is needed. Containers moving on the line rotate a pair of starwheels which in turn actuate the stamping wheel so that containers actually mark themselves. There is no restriction as to speed; the speed of the containers moving along the line is the only determining factor. Two models are offered, both adjustable to conveyor widths and container sizes. The Bruceway Marker is exclusively manufac tured and distributed by Barry-Wehmiller Machinery Co., 4660 West Florissant Ave., St. Louis, Mo.

INDUSTRIAL OVENS
Electric Type

Industrial ovens feature automatic wattage control and balanced heat with temperature range of 100 deg. F. to 600 deg. F., according to the manufacturer. Applications include coil and armature baking, aging, drying, preheating, synthetic finish baking, etc. Blue M Electric Co., 306-08 W. 69th St., Chicago 21, Ill.

JUST SAY THE WORD!

"TRIPLETITE" lid binds metal to metal at three points—provides 50% better protection!

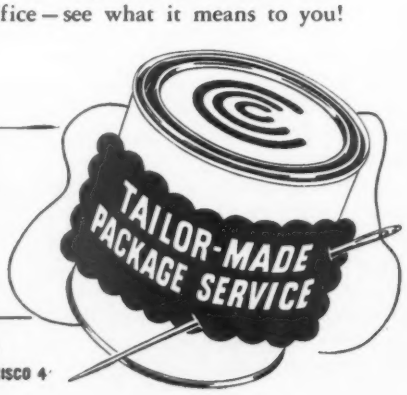
When you need cans in a hurry, just let Continental know. We'll really build a fire under your order and get the cans rolling to you—fast. Speedy delivery is one of the most important features of Continental's Tailor-Made Service.

And you get the best in containers, too. Our "Tripletite" paint cans provide a 50% increase in guard points against oxidation and formation of wasteful paint skin. As shown at the left, the metal lid binds at three points instead of the usual two.

Why not give Continental service a try? Call your nearest Continental office—see what it means to you!

CONTINENTAL CAN COMPANY

CONTINENTAL CAN BUILDING 100 East 42nd Street · New York 17, N. Y.

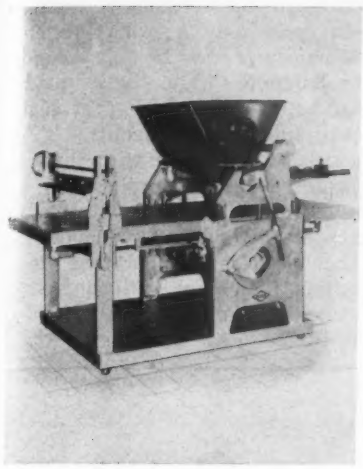


EASTERN DIVISION: 100 E. 42nd ST., NEW YORK 17

CENTRAL DIVISION: 135 SO. LA SALLE ST., CHICAGO 3

PACIFIC DIVISION: RUSS BUILDING, SAN FRANCISCO 4

NEW PRODUCTS



FILLER MACHINE

FILLING MACHINE
High Speed

Six-line filling machine fills and caps up to 120 paint containers a minute, according to the manufacturer. Containers can be automatically fed or manually fed and only one operator is required to put caps on as the cap pressing device presses them tightly in place. All contact parts are bronze or stainless steel. Automatic feeder and agitator can be provided if required. The Filler Machine Co., Inc., Philmont Club Station, Pa.

EXTENDER PIGMENT
For Latex Paints

Pigment designed for latex emulsion paints is offered under the commercial name of "Micro Velva L." According to the manufacturer, latex formulations employing this extender exhibit the following properties: good can satability, good smoothness and hardness, reduction in the use of hiding pigments. Recommended in 100 percent latex, alkyd modified latex, and protein modified latex. Carbola Chemical Co., Inc., Natural Bridge, N. Y.

PIPE & FITTINGS
For Welded Piping

Complete line of jacketed pipe and fittings for use on welded piping. Detailed information on this new line can be obtained by writing Red Jacket Co., Investment Bldg., Pittsburgh 22, Pa.

DISPENSING VALVE
Has Nylon or Teflon Valve Set

Improvement in spray performance is claimed with this dispensing valve. Flexible metal diaphragm and valve seat, made of nylon and teflon permits the use of all standard propellents plus such high solvency types as "Freon-21" and Freon-22". Proximity of secondary orifice to terminal orifice minimizes the possibility of clogging due to internal drying, according to the manufacturer. For further details, write to the Valve Div., The Risdon Manufacturing Co., Naugatuck, Conn.

RISDON

DISPERSING AGENT
For Latex Systems

"Daxad 11KLS" is a dispersing agent available as the potassium salt in powder form. This material is of particular interest to the latex manufacturers as it helps to control the efflorescence occuring on the surface of latex paints, particularly when applied to plaster. It has been revealed that efflorescence is caused by the action of sodium and sulphate ions found both in plaster and latex paint. By using a potassium type of dispersing agent, (many are in form of sodium salts), and keeping the sulphate types to a minimum, efflorescence will be reduced. According to the manufacturer, the sodium content in this dispersing agent is held to a maximum of 0.25 per cent and the sulphate present is potassium sulphate and is limited to a maximum of 10 percent. Dewey and Almy Chemical Co., Cambridge, Mass.

FORK TRUCK
3 Speeds

Fork truck is equipped with three speeds which results in smoother, easier shifting. The low-speed gear enables it to climb a 24 percent grade under full load. Clark Equipment Co., Industrial Truck Div., Battle Creek, Mich.

VALVE DISPENSING UNIT
For Aerosol Products

Valve dispensing unit for aerosol products is available with valve and spray head furnished separately. The spray head is interchangeable with all cans using the threaded valve unit so the product packager need not supply a spray head with each can. The unit is equipped with a variable spray nozzle which is adjustable to a horizontal or vertical pattern, and is claimed to give 30 perent greater coverage. Clogging is reduced by a special design in the inner and spray head orifices. For further details write to Pressure-Pack, Inc., Detroit 31, Mich.

SHOVEL TRUCK
For Moving Drums

Shovel truck is used for fast pick-up and easy wheeling in moving drums in factory, warehouse, etc. Sturdy, all-welded construction. Has steel nose plate 19 feet wide at base tapering 13 inches at front. Weighs approximately 50 pounds. Palmer-Shile Co., 16039 Fullerton Detroit 27, Mich.

PALMER-SHILE

NEW PRODUCTS

LABLINE

DUPLEX HEATER
Reflector Type

Reflector type heating element eliminates lower refractory. Has nickel rod core and Nichrome heating coils developing maximum heat in 15 seconds, cools to black heat in 7 seconds. Equipped with removable support rod. Three types are available: powerstat controlled, rheostat controlled, and single heat. Labline, Inc., 217 N. Desplaines St., Chicago 6, Ill.

MOTOR TRUCK SCALES
Equipped with Ball Bearings

Truck scales is equipped with ball-bearing feature which is said to save wear on knife edges and bearings, prolongs scale accuracy and reduces maintenance. Also inside anti-friction plates are used to give proper clearances and to eliminate all lateral motion. Pivots are made with square ends without anti-friction points. Capacity 50 tons and platform sizes are 45, 50 or 60 feet long by 10 feet wide. The Howe Scale Co., Rutland, Vermont.

LATEX BASE
Eases Compounding

Latex vehicle, Aquasperse No. 30, possesses good wetting and dispersion properties. The pigment is mixed with casein, forming a paste which is then milled. Further compounding consists of adding the base latex to this paste. American Resinous Chemicals Corp., Peabody, Mass.

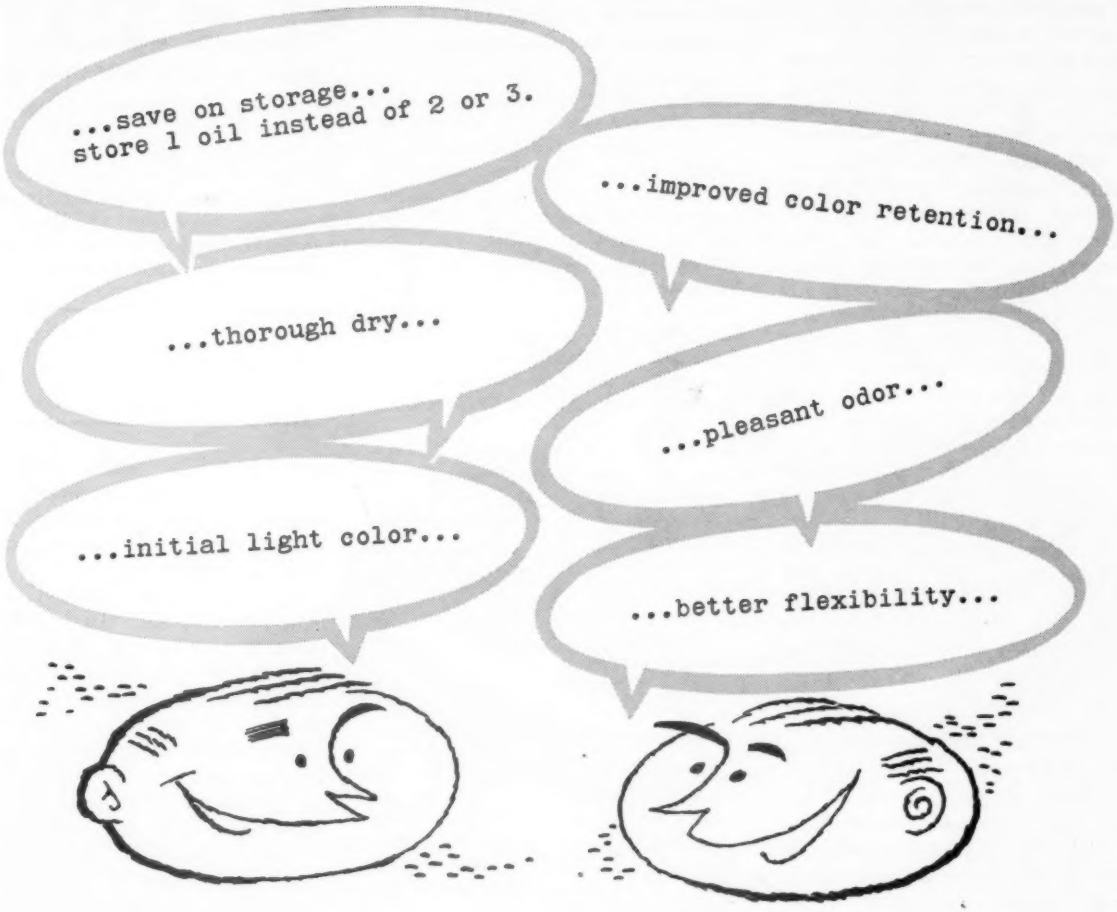
SILICONE OINTMENT
Protects Workers' Hand

Rough chapped, irritated skin, resulting from frequent exposure to water and other substances may be prevented by the use of a protective ointment which contains silicones. Known as "Silicote", this ointment repels water and moisture, and at the same time allows normal skin respiration, according to the manufacturer. It may be used either before exposure to prevent irritation, or to facilitate healing. Arnar-Stone Laboratories, Inc., 1316 Sherman Ave., Evanston, Ill.

PYROMETER CONTROLLERS
Electron Type

"Free-Vane" controllers feature a unique electronic control system based on the frequency modulation principle, a millivoltmeter mechanism, and a unit plug-in construction. The basic model can be used for low-open, high-open and low-high control. All models are available with thermocouple "fail safe protection" to protect the heating appliance in case of thermocouple burn-out or other failures. Temperature range include 0-400 deg. F. to 0-3000 deg. F. Bristol Co., Waterbury 20, Conn.

Here's what paint and varnish manufacturers say about SAFFLOWER OIL:



Many smart paint manufacturers are using standard non-break Safflower oil in improved exterior finishes, as well as in alkyds and varnishes; standard kettle-bodied Safflower for improved interior and exterior finishes.

If you're not using Safflower oil, take a tip: get on the bandwagon now. Write today for information.

PVO OILS
PAINT & VARNISH
PACIFIC VEGETABLE OIL CORP.

INDUSTRIAL OILS:

Linseed, Tung, Safflower, Soya, Oiticica, Castor, Sardine. Also Coconut Oil, Lard, Walnut Oil and others.

62 TOWNSEND STREET
SAN FRANCISCO, CALIF.

NEW PRODUCTS

ARC ROD PROCESS
Cuts Refractory Materials

Patented process for cutting and piercing stone, cement, concrete and refractory materials known as "DynArc" requires no ground and it does not have to be struck upon metal. The operator has complete control at all times and he alone determines when and where the arc will start. Wherever a DC welding machine is available of 400 amp. or more capacity, this process may be used. No compressors, air lines, oxygen tanks, pneumatic drills are necessary. A conventional welding machine and a supply of "DynaTrode" rods are all the equipment required. When equipment has to be installed the time-consuming drilling of holes in the concrete is eliminated. This rod will pierce the solid concrete in a matter of seconds, the manufacturer claims. In maintenance work, especially when buried pipes need attention, this process is useful. For further details, and technical data, write to: ChemoTec Div., Eutectic Welding Alloys Corp., 172nd St., and Northern Blvd., Flushing, N. Y.

PROTECTIVE COLLOID
For Latex Paints

Franklin Dispersion No. 52 is a film former and protective colloid of high viscosity designed for use with polystyrene and styrene-butadiene latices. According to the manufacturer, this material is a deterrent for the separation of the various constituents of latex paints either by instability or freezing and thawing. Other properties claimed include: better brushing and flowing, adds freeze-thaw resistance, furnishes viscosity control, improves pigment dispersion, and increases the stability of the paint. For further information write to the Franklin Glue Co., Columbus 15, Ohio.

•

SILICONE RUBBER

Properties and processing of silicone rubber as an insulating material for wire and cable are set forth in bulletin No. CDS-13. Copies may be obtained from the Chemical Div., General Electric Co., Pittsfield, Mass.

$495,000,000 Saved Since 1941 In Tinplate Conservation Programs

Approximately 257,000 tons of tin, valued at $495,000,000 have been saved since 1941 through the coordination of industry and government research in tinplate conservation programs in the production of cans, according to Berton S. Clark, scientific director of the American Can Company.

Speaking at a meeting of the New York section of the Institute of Food Technologists, of which he is president-elect, Dr. Clark said that the average tin coating per base box (of tinplate sheets) has been reduced from 1.31 pounds to an estimated .598 pounds last year.

He added that the conservation program was based in large part on the steel companies' conversion from hot-dipped tinplate to electrolytic plate and black plate.

Dr. Clark stated that cans for about 120 canned food items alone have been involved in the tin conservation program as well as a number of cans used for non-food items.

•

Du Pont Paint Technicians Hear Talk on Iron Oxides

A talk on *Natural and Synthetic Iron Oxides — Production and Uses*, was presented recently by I. C. Clare, Assistant Director of Research, C. K. Williams & Co., before a technical training group of the Du Pont Company's Chicago paint plant.

Mr. Clare traced the history of the development of iron oxides, with emphasis on modern production methods and current applications of this oxide group to various classifications of work.

He said that the newest formulations in the field is Kroma Reds, characterized by bright color, sharp gloss and easy dispersion.

•

FPVPC's Yearly Budget Approved At Finance Committee Meeting

The yearly budget for the Federation of Paint and Varnish Production Clubs was approved at the first Quarter Meetings of the Finance and Executive Committees of the FPVPC held at the Cleveland Hotel, Cleveland, Ohio, February 20-21.

The Federation group was guest at the meeting of the Cleveland Paint and Varnish Production Club meeting, February 20.

Witco Chemical Warehousing Paint Driers in Kansas City

The Witco Chemical Company of New York City, has announced that they are now warehousing a complete inventory of their paint driers in Kansas City, Mo.

•

Hardesty & Co. Appoints Hukill Chemical its Northern Ohio Agent

Hardesty & Company, 60 East 42 St., New York 17, N.Y., has appointed the Hukill Chemical Corporation as its agent in the northern Ohio territory.

Hukill Chemical, located at 2533 Broadway, Cleveland 13, Ohio, will handle Hardesty's line of fatty acids, hydrogenated oils and glycerine.

ALKYDS

(*From page 36*)

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pressure. The water turns to steam as it nears the blaze, thus cooling it and blanketing it so that no air gets at the surface to continue combustion.

A very unique method is to fight fire with air. Air is bubbled through the bottom of the tank in sufficient quantities to displace the top contents with the bottom contents in the tank. Some conditions must be observed before this method can be used. The fire point of the contents must be higher than the temperature in the tank. The fire point is that temperature at which vapors are emitted which in turn can be ignited by a flame, and continue to burn. The average varnish has a fire point a little over 100 degrees F. The temperature of the varnish in the tank, therefore, must be under 100 degrees F. If that condition is met, introducing air at the bottom of the tank brings up the colder masses of varnish to the point where no vapors are emitted. Then the fire goes out. You have removed the inflammable material — the vapors. If the tank temperature is above the fire point, using air may cut down the fierceness of the flames because you may be bringing up relatively cooler masses than the masses of resin at the burning zone. On the other hand it may be simpler to extinguish with foam or CO_2.

let's go "paint"

Cowboy Junior and his paint horse will be chasing badmen across the plains for many years before his favorite mount loses its complexion.

Little "short-in-the-saddle" likes his colors dashing, and he gives his rocking mount a beating. That's why its painted hide has to be tough.

In coatings like these TITANOX white pigments play an important part . . . whether Junior's preference is bay, dapple gray or roan. And if he should leave his steed outdoors, the chalking resistant TITANOX pigments will help protect its hide from the weather.

We are always ready to discuss the best application of TITANOX pigments to your industrial product finishes. Titanium Pigment Corporation, 111 Broadway, New York 6, N.Y.; Atlanta; Boston 6; Chicago 3; Cleveland 15; Los Angeles 22; Philadelphia 3; Pittsburgh 12; Portland 9, Ore.; San Francisco 7. In Canada: Canadian Titanium Pigments Limited, Montreal 2; Toronto 1.

®**TITANOX**

the brightest name in pigments

1580

TITANIUM PIGMENT CORPORATION

Subsidiary of NATIONAL LEAD COMPANY

This team can cut your formulation costs

Varnish and lacquer manufacturers are calling this an unbeatable combination—

The broad range of Special Solvents, engineered to meet the highest industry standards, manufactured under controls that assure consistent uniformity, sold at prices that can save you money right down the line—

PLUS a practical way to fit these Special Solvents into your production picture.

For example—say you're interested in a low-cost replacement for MEK in nitrocellulose lacquers. The fully-equipped Celanese Product Evaluation Laboratories will work directly with you in making up a money-saving formulation incorporating Celanese* Solvent 601 that can more than meet your performance specifications. This new *profit column* formulation will undergo a series of comprehensive tests. At the same time, production cost analyses will be prepared for your information.

* * *

Why not call in your Celanese representative to discuss your solvent problems and requirements. He can also show you how you can save on split shipments in compartmented tankcars and wagons. Overnight delivery to major industrial areas. Write Celanese Corporation of America, Chemical Division, Dept. 558-D, 180 Madison Avenue, New York 16, N. Y.

CELANESE *profit column* **SOLVENTS**

Solvent 203	Solvent 301
Solvent 601	Solvent 901
Acetone	Methanol
n-Propanol	Isobutanol
n-Propyl Acetate	

Celanese* CHEMICALS

*Reg. U.S. Pat. Off.

CONTAINER DEVELOPMENTS

(*From Page 27*)

orm the indicated operations.

The phosphating machine for he process embodies the following steps:

1. *Alkali cleaning.* A heavy duty industrial alkali is used, depending largely on the kind of drawing lubricant to be removed from the stamped heads.

new and added benefits to companies using these containers.

They are chemically clean — "water-break free" inside, free of contaminating residue such as oil, and dirt drawing and stamping compounds.

They are free of mill-scale — United States Steel Products is the first steel drum manufacturer to completely remove objectionable mill scale.

They are rust inhibited with a zinc phosphate coating — These new steel drums have the added advantage of a non-metallic zinc

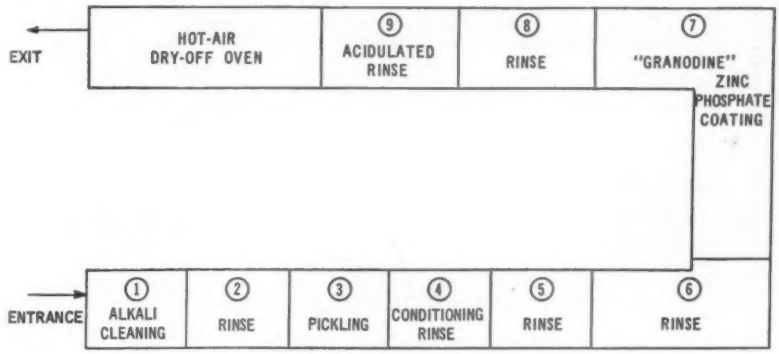

Figure 3. Floor plan of the automatic nine-stage phosphating machine.

2. *Rinsing* in unheated water, overflowed freely to prevent carrying over of alkali into the pickling stage.
3. *Pickling in sulfuric acid* with the use of a suitable inhibitor, such as "Rodine".**
4. *Rinsing* in unheated water, overflowing.
5. *Rinsing* in unheated water, overflowing.
6. *Rinsing* in unheated water, overflowing.

   Note: This permits a conditioning of the surface to produce finer grained phosphate coatings.
7. *Phosphatizing* in zinc phosphate solution.
8. *Rinsing* in unheated water, overflowing.
9. *Rinsing* in hot, very dilute chromic-phosphoric acid solution.
10. *Drying* in hot air oven.

The phosphate-coated drums now being produced at all United States Steel Products plants offer many

phosphate coating which bonds the exterior paint finish tightly and durably; and suppresses underfinish rusting if paint is accidentally scraped off. Since this phosphate coating is applied after fabrication of the drum, there is no chance for this coating to be damaged in any forming operation.

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Chemical Institute of Canada To Hold 36th Annual Conference

Close to 1,000 chemists and chemical engineers are expected to attend the 36th Annual Conference of the Chemical Institute of Canada, being held June 4-6, in Windsor, Ont., for the first time.

Many industrialists and scientists will prepare papers for the technical sessions.

Among the subjects to be covered are protective coatings, organic and physical chemistry, chemical engineering and analytical chemistry.

Included in the special events will be the presentation of the Chemical Institute of Canada Medal to the outstanding Canadian scientist.

On June 4, the names of the new officers of the Institute for 1953-54 will be announced.

3-Day Basic Material Conference To Be Held June 16-18, in NYC.

Some 15,000 visitors are expected at a three-day conference to discuss the vast range of basic materials available to manufacturers, to be held June 16-18, at the Hotel Roosevelt, New York.

The conference will supplement the first Exposition of Basic Materials for Industry which will be held at the Grand Central Palace, New York, June 15-19.

Heads of more than 20 companies have formed a board of sponsors for the show and conference which will provide the first clearing house of information ever attempted for the entire field of materials for hard goods manufacturing.

Don G. Mitchell, president, Sylvania Electric Products, Inc., is chairman of this board. Theodore C. DuMond, editor, "Materials & Methods," will serve as general chairman of the first conference.

Morning sessions of the three-day meeting will be devoted to the general aspects of material selection, while the afternoon sessions will be given over to discussions of technical properties of new and old materials.

One session will be devoted to consideration of economic factors of new materials developed and those in the research stage.

Another session will discuss product design with special emphasis on the coordination of materials with production and design, from the standpoint of efficiency in use, sales appeal, cost and the type of machinery used in the manufacturing process.

Other meetings will cover methods by which materials engineering departments can keep up with the latest research, the use of books specifying standards for materials, sizes and composition standards, and information on new materials.

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Glidden Representatives Meet To Discuss Coating Developments

Latest developments in industrial finishes were previewed by sales, service and technical personnel of the Glidden Company, Cleveland, Ohio, at a recent meeting held March 4-5, in Cleveland.

More than 200 Glidden representatives from all parts of the United States and Canada, along with about 20 guests, discussed 16 major types of new or outstanding finishes for metal, wood, paper, plastic and other industrial products.

A feature of the conference, was a panel of eight executives from process and equipment industries allied to the paint field. They spoke at forums on metal preparation and finishing methods.

**"Rodine" Trade Mark Reg. U.S. Pat. Off. by American Chemical Paint Company.

Personnel Changes

NEW CHEMICAL CONSULTANT

William W. Lewers for the past ten years chief chemist for the Griffin Manufacturing Co., Brooklyn, has announced the establishment of his own chemical and engineering consulting service with offices and laboratory at 207 Norman Ave., Brooklyn, N.Y. He will specialize in chemical research, development and testing of emulsions and latex paints, and various dispersion problems. Prior to his association with Griffin, Mr. Lewers was with the Du Pont Company for 15 years.

W. W. Lewers

MORRIS PAINT

Lee Bishop has been appointed to the sales staff. He will take over territories in northern Nebraska, South Dakota and Iowa. Mr. Bishop has had many years experience in the paint field.

N. E. TALBERT

Formation of the N. E. Talbert Company, 120 Liberty St., New York 6, N.Y., a raw material sales agency serving the Metropoliatan New York area, has been announced. The firm will widen the distribution of two local manufacturers. They are: Resyn Corporation of America, Linden, N.J., and Reil Chemicals, Inc., Brooklyn, N.Y. Norbort E. Talbert heads the company.

SHERWIN-WILLIAMS

H. E. Spitzer has been named director of development. He will supervise all of the firm's development laboratories, except the trade sales development section, headed by S. F. Carlson. Mr. Spitzer joined Sherwin-Williams in 1937. He was most recently general supervisor of the paint, varnish and lacquer development laboratories at Chicago.

HEYDEN CHEMICAL

James K. Lindsay has been elected secretary, replacing Paul van der Stricht who has resigned. Mr. Lindsay was previously a partner in the law firm of Fulton, Walter and Halley, 30 Rockefeller Plaza.

G-E

Dr. William E. Cass has been named manager of the New Product Development Laboratory of the firm's Chemical Division. He had been manager of the organic chemistry section of the G-E research laboratory since 1950.

INERTOL

James A. Condon has been appointed manager of advertising and technical services. He had been in charge of correspondence and customer contact in Inertol's Technical Service Department for seven years.

PITTSBURGH PLATE

E. Lester Fix, associated with the Glass Division research operations since 1928, has been appointed associate director of research. He will be responsible for the general administrative direction of laboratory operations.

Brooks J. Dennison has been appointed assistant director of research. He will be principally concerned with general laboratory activities.

Dr. James E. Archer has also been appointed an assistant director of research. He will assume direction of the fundamental research program.

Adaptable...

...that's the paint maker's word for

*Dutch Boy** Basic Silicate White Lead "45X"

Take the paint maker's word for it – you just can't miss with adaptable "Dutch Boy" Basic Silicate White Lead "45X" in your exterior paint formulations.

It's new "lead" magic.

In white House Paints, for example, "Dutch Boy" Basic Silicate White Lead "45X" improves self-cleaning properties: permits rain to wet the surface uniformly and remove dirt by washing off the inert chalk.

In tinted House Paints, it contributes to film durability, thus making for greater resistance to fading. Furthermore, its hydrophilic properties promote dirt removal, thus helping to keep colors fresh and clean.

In Primers, adaptable "45X" provides the lead soaps that increase adhesion. "45X" also gives the paint film the water resistance needed to maintain its adhesive bond and helps prevent peeling.

In Porch and Floor Enamels, "45X" plasticizes the film, increasing abrasion resistance. Lead soaps formed contribute to the film's flexibility and water resistance, increasing adhesion.

It's a proved paint improver, "Dutch Boy" Basic Silicate White Lead "45X." Put it to work improving your exterior paints!

More economical, too!

In adaptable "Dutch Boy" Basic Silicate White Lead "45X," the reactive portion of each pigment particle is concentrated at the surface. This makes available porportionately larger amounts of "lead." So you use fewer pounds than with other white lead types.

*Reg. U. S. Pat. Off.

National Lead Company: New York 6; Atlanta; Buffalo 3; Chicago 8; Cincinnati 3; Cleveland 13; Dallas 2; Philadelphia 25; Pittsburgh 12; St. Louis 1; San Francisco 10; Boston 6 (National Lead Co. of Mass.).

REYNOLDS METALS

Douglas McKellar has been named manager of the Paint Market Sales, and **Edward F. Reilly** assistant manager of the Paint Sales Division. Among their duties will be national promotion of "Liquid Aluminum" paint. Mr. McKellar was employed in chemical pigment sales by the Kentucky Color and Chemical Company, Louisville, Ky., prior to joining Reynolds. Mr. Reilly joined the firm in 1940.

William P. Liljestrom has been appointed chemical specialist for the firm's Pacific Coast region with headquarters at 601 South Ardmore in Los Angeles. His duties will include the application of Reynolds Aluminum products to the process industries. Before joining Reynolds, Mr. Liljestrom was employed by the Filtrol Corporation, Los Angeles.

NEW ORLEANS PAINT

David Bernhardt, Jr., has resumed his position as vice president after a tour of duty with the United States Navy.

Roy Cucullu has been reappointed production manger. He also has just completed a tour of duty with the United States Navy.

Garry Hotchkiss has resumed his duties as chief chemist in charge of all development, research and control for the firm. The appointees all serve in the manufacturing department.

WOLVERINE FINISHES

Earl M. Dunbar, president of the Wolferine Finishes Corporation, has been appointed a member of the lacquer Committee of the National Paint, Varnish and Lacquer Association of Washington, D. C.

ST. JOSEPH LEAD

Harry E. Outcault, manager of Zinc Oxide Sales, has retired from the firm. The Zinc Oxide Sales Department has been consolidated with the Metal Sales Department. **Charles R. Ince,** vice president and manager of Metal Sales, becomes vice president and sales manager. **Malcolm Bonynge** and **Dwight Marshall** will continue as assistant sales managers in the Department and **Robert H. Crossley** will become assistant sales manager in charge of zinc oxide sales.

H. E. Outcault

KIENLE & COMPANY

David H. Harper, a private consultant in the field of resins and organic coatings, has been put in charge of the Vehicle and Coating Division. He was associated with the Research Division of the American Can Company for many years.

John C. McNamara, most recently with the H. Cavanagh Company, has been assigned to the development and marketing of special protective and decorative issues.

KYANIZE PAINTS

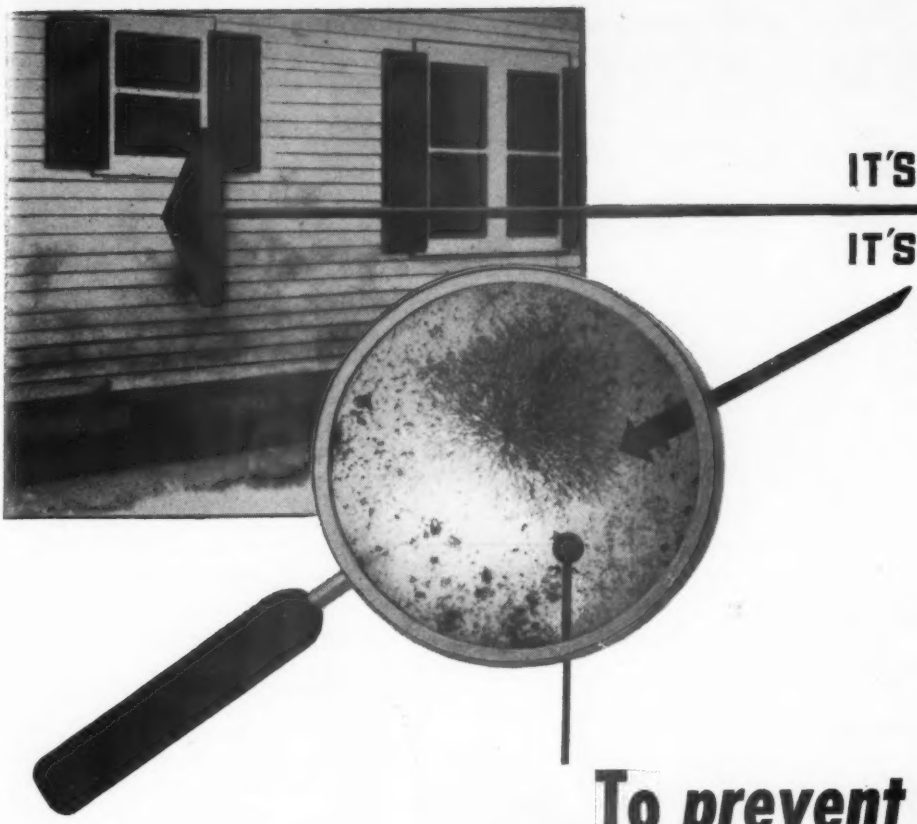
John M. Kahney has joined the firm as technical director. He will be responsible for the quality control of existing products as well as the development of new products. Mr. Kahney has had 24 years of experience in the development, manufacture and utilization of oleoresinous, synthetic and water-thinned paints, varnishes and enamels.

FINE ORGANICS

Standard Products, Inc. of 650 East Gilbert St., Witchita 11, Kansas, has been appointed exclusive selling agents for the Fine Organics' Aviation-Industrial line, in the states of Kansas, Oklahoma and Missouri. Standard Products will be responsible for selling the firm's "Strato Line" aviation maintenance chemicals and "F O" line of industrial maintenance chemicals.

ESCO LABORATORIES

John D'Amico has been appointed an associate at the Laboratories. Before joining Esco, he was technical director of the Muralo Company for five years. Half of the time was spent in the Los Angeles plant where he was in charge of production. Esco Laboratories are consultants, specializing in the development and problems of latex paint manufacture.



IT'S NOT DIRT!

IT'S MILDEW

To *prevent* mildew, fortify paint with Du Pont IN-2555

FUNGICIDE

Du Pont IN-2555 (Phenyl Mercury Oleate) is an organic mercurial unsurpassed for fortifying paint against mildew occurrence. It is water-insoluble, nonvolatile at ordinary temperatures and stable to ultraviolet radiation. Additionally, it produces an amorphous film that will not creep or bloom on the surface. IN-2555 is effective in low concentrations and can usually be added to production mixes without formulation changes.

Many paint manufacturers are already profiting with Du Pont IN-2555. Its unique characteristics and wide adaptability can help you to improve your products, too. For detailed technical data, fill out and return the coupon today.

DU PONT
REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
... *THROUGH CHEMISTRY*

GRASSELLI CHEMICALS

FOR THE PAINT INDUSTRY INCLUDE:

Chlorosulfonic Acid	Potassium Silicate
Sulfuric Acid	Sodium Metasilicate
Muriatic Acid	Aluminum Chloride
Sodium Silicate	Nitric Acid
Aluminum Sulphate, Iron-Free	And many others

E. I. du Pont de Nemours & Co. (Inc.)
Grasselli Chemicals Department, Wilmington, Delaware

Please send me technical bulletin with detailed information on Du Pont IN-2555 Fungicide.

*Name*_____ *Title*_____

*Company*_____

*Address*_____

*City*_____ *State*_____

NATIONAL LEAD

F. J. Koegler has been made a vice-president of the firm and general manager of the newly-formed Doehler-Jarvis Division. He will direct National Lead's operations in the die casting field. Mr. Koegler joined Doehler-Jarvis Corporation in 1913. He became successively, treasurer and a director in 1926, a vice president in 1933, executive vice president in 1948 and president in January last year. He makes his headquarters in Toledo, O.

KENTUCKY COLOR

Norman V. Lovett has been appointed manager of the newly established district office and warehouse in Los Angeles, Calif. He will handle all sales and service of the firm's line of Shawnee colors, and will also serve as sales engineer in San Francisco. Mr. Lovett will work with Kentucky Color's recently appointed agent, John W. Dennin, in the San Francisco area. He most recently served as chemist and plant manager at the Denver plant of Benjamin Moore & Company.

SIPE & COMPANY

Nicholas D. Ali has been appointed technical director of James B. Sipe & Company, a division of the Hanna Paint Company. For the past two and one half years, he has served as chief chemist for the firm. Mr. Ali's background includes service as a research chemist with the American Cyanamid Company and Neville Company and as research director with the Hodson Corporation.

GOODYEAR TIRE

Rex S. Dramen, sales representative for the firm's Chemical Division, has been assigned to the Cleveland district office. He will specialize in technical service to paint companies in the Detroit, Cleveland, Columbus, and Cincinnati area.

R. S. Dramen

Dan Lewis, Jr., field sales representative of the firm's Chemical Division, has been assigned as special representative at the Division's newly established district office in Dallas, Tex. He will provide service and technical information on Goodyear chemical products in Arkansas, Louisiana, and Oklahoma, as well as in Texas. Mr. Lewis joined the firm in 1952.

CONTINENTAL CAN

Charles B. Stauffacher has been appointed control officer. He formerly served as executive assistant director for the U. S. Bureau of the Budget. Mr. Stauffacher joined the Bureau in 1941.

Peter Wojtul has been appointed to the newly-created post of director of sales. He will advise and assist all Continental Can product divisions in their sales activities.

W. K. Neuman suceeds Mr. Wojtul as general manager of sales, Metal Division. Mr. Neuman was formerly general manager, southeastern district.

Benjamin C. Betner, Jr., has been elected a vice president of the firm. He was formerly president of the Benjaman C. Betner Company, whose assets and business were recently acquired by Continental. In his new post, Mr. Betner will be in charge of the Betner Division, which will continue as a separate unit, manufacturing small and medium sized bags.

CALCO

Donald L. Griswold will be transferred to the head office at Bound Brook as assistant to the manager of the Dyestuff Department, effective July 1. He has been manager of the Calco Chemical Division, North American Cyanamid Limited, with headquarters in the Town of Mount Royal.

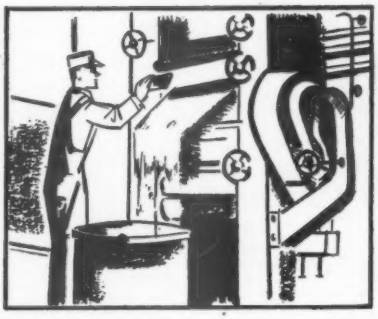
J. R. Burkett will be transferred from the Dyestuff Sales Department at Bound Brook, to manage the business of the Calco Division at Montreal.

ISCO CHEMICAL SALES AND SERVICE

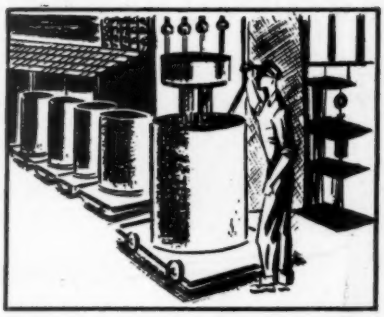
Since 1816

Where Innis, Speiden Service Helps You!

Silica, extender for paints. ISCO Amorphous Pure Soft Decomposed. Prime, white and uniform-99½% pure.



Talc, extender for paints. Sierra Fibrene C-400—all particles finer than 40 microns. Sierra Mistron-surface mean diameter of 0.76 microns.



Diatomaceous Earth, extender for paints and decolorizing agent for shellacs and varnishes.

There is no better source for heavy chemicals and white goods than Innis, Speiden! For 137 years this name has been a chemical industry by-word. From ISCO sales offices and stock points throughout the United States you can depend upon prompt shipment and service that follows through. ISCO products are high in quality and backed by expert assistance on application problems. Your inquiry for full information on ISCO products will receive immediate attention. INNIS, SPEIDEN & CO., INC., 117 LIBERTY ST., NEW YORK 6, N. Y. SALES OFFICES IN BOSTON, CHICAGO, CLEVELAND, AND PHILADELPHIA.

ISCO PRODUCTS
for the
PAINT INDUSTRY

Casein — Silicas — Talcs

Metallic Stearates

Diatomaceous Earth

INNIS ISCO SPEIDEN

Since 1816

AMERICAN CYANAMID

L. G. Perkinson has been elected vice-president and G. C. Walker, treasurer. Mr. Perkinson served most recently as a director, and prior to this post, treasurer. Mr. Walker had been assistant treasurer since 1951. Mr. Perkinson joined American Cyanamid in 1921. Mr. Walker joined the firm in 1933.

KINETIC DISPERSION

Charles Tennant & Company (Canada) **Limited** has been appointed agent and representative for the sale of "Kady" mills in Canada. Charles Tennant has sales offices at 96 Bloore Street West, Toronto 5, Ontario and 440 Canada Cement Building, Montreal, Quebec.

KOPPERS

Carl H. Pottenger, assistant sales manager of the Chemical Division since 1948, has been promoted to assistant vice president and Division sales manager. He succeeds T. C. Keeling, Jr., who resigned to become president of the Hydrocarbons Division of the Mathieson Chemical Corp. of Baltimore.

J. W. Pool, Jr., has been named assistant sales manager of the Chemical Division. He was formerly chemical products manager for the Division.

G. K. McDonald has been appointed manager of the Chemical Division's Kearny, N. J. plant. He joined the firm in 1946, becoming general foreman of the plant in 1947.

Ronald Barraclough has been named assistant manager of the Petrolia, Pa., plant of the Chemical Division of Koppers. He joined Koppers as a Research Cadet at the Kearny, N. J. plant in 1941. Prior to his recent appointment, Mr. Barraclough served as manager of the Seaboard chemical plant.

R. C. Kenan has been appointed assistant sales manager of the midwestern district of the Tar Products Division. He joined the firm in 1936 as a cadet in the Division. Most recently Mr. Kenan served in the hot applied coatings section of the midwestern sales district.

GEORGIA MARBLE

Ernest C. McDonald, Jr. has been appointed head of the firm's new Technical Service Laboratory. The laboratory is now under construction and is expected to be completed in the near future. Mr. McDonald's background in the pigment and inert field includes three years service with the Eagle-Picher Company at Galena, Kansas, four years in the Devoe & Raynolds Laboratories at Louisville, Ky., and as paint and varnish research head for Eagle-Picher at Joplin, Missouri, for the last two years.

E. C. McDonald Jr.

A-D-M

Hall S. Dillon has been named head of the paint laboratory. He succeeds **Floyd Nelson** who will be technical sales representative of ADM in 1953 in several southern and western states. Mr. Dillon joined ADM in 1949 as a technical sales service man in the New York area, following several years of work in sales and technical sales work with two Philadelphia concerns. Mr. Nelson started with ADM in 1948 as a member of its paint research group and was made head of the paint laboratory last year.

H. S. Dillon

UNITED WALLPAPER

John Close, former technical director of the Color Division, has been appointed general sales manager of the Division. He replaces Curt T. Uebel, who resigned from the position to become a manufacturer's agent in the paint field.

THE LAB HELPS OUT —

(*From page 38*)

cupboard door and tossing together the evening repast. That is, it was fun until strange cans began to make their appearance among the green beans and apple sauce. Pints and quarts with cute labels like "methel ethel keytone".* It was when these finally left room for only two food tins that I finally questioned my favorite scientist. He sort of puffed up like a pouter pigeon. "Why, those are very important! You wouldn't ask an architect to toss out his blueprints or a doctor his scalpels!"

*Yes, we know the spelling is wrong.

"Oh, no." I agreed. All the while chomping my jaws and cautiously muttering, "food, food . . ." I realized that I was dealing with a little boy and his marble collection. Finally I guess my hints hit their mark and my husband waved his hand in a magnanimous gesture. "Never fear, I will take care of everything."

Sure enough, the following night the food cabinet was gloriously empty — I was happy — that is, until the next time I swept under the bed!

Test panels caused quite a misunderstanding in our household. The first encounter came when my husband produced some panels and, handing them to me with a key, said, "Scratch them!"

I grated the key over the surface and left no mark. Anxiety seized me, for I felt that more than this was expected of me. Now, I am a gal with very sturdy fingernails, so, applying them with all the dexterity I could muster, I managed a few scratches. I looked up triumphantly and certainly was surprised by the crestfallen expression on my spouse's face. He then explained the difference between my results and those desired. And you can be sure that in the future I was the carefullest, non-abrasive, test-panel scratching wife east of the Pacific.

Another bad moment came when my husband dropped a panel in my lap, saying, "orange peel." I held the panel to the light, gazed with an expert eye, and squealed delightedly, "Oh, honey, how pretty! It's just perfect! And I bet there's hundreds of uses for it. . . ." I quickly learned to curb my enthusiasm for orange peel.

A few wedding anniversaries have passed since my initial introduction to the paint and finishes industry. We've reluctantly (now who's kidding who!) swapped the garret for a garden apartment which affords room for a retain cabinet. And there the cans stay until the contents dry up and they are replaced by new ones. We bought furniture and I learned about cold-checking, veneers, lacquers, hand-rubbing, and the great part plastics play in the modern home. Every day in some manner the lab inserts itself into our daily routine, and the scientific method leavened with levity turns drear duty into fun. And lately the world's best chemist has started to bring graduates home, and to read with great interest the water, dextro-maltose, and milk formulae of Dr. Spock.

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Film, 'Color Comes of Age,' Featured at PDCA Convention

A film pageant, "Color Comes of Age," an assembly of recorded interviews with top designers, decorators, architects, and other authorities from all over the country, was featured at the National Convention of the Painting and Decorating Contractors of America, held March 12, at the Palmer House in Chicago.

Jack Zucker, president of the PDCA, summerized the film discussion by saying, "A knowledge of color, of style trends, materials, and methods is the painting contractor's best asset in selling his service."

The importance of color in making people feel better, more relaxed and secure was emphasized by all the film participants which included William M. Stuart, president of the Martin-Senour Paint Company, and Walter Paepcke, chairman of the board of the Container Corporation.

The film was presented by Martin-Senour, which plans to exhibit it at paint meetings throughout the country.

PATENTS

Conducted by

Lancaster, Allwine & Rommel

PATENTS AND COPYRIGHTS

424 Bowen Building,
Washington, D. C.

Complete copies of any patents or trade-mark registration reported below may be obtained by sending 50c for each copy desired to Lancaster, Allwine & Rommel.

Stain Filler Sealer

U.S. Patent 2,623,027. George L. Denis-ton and Orion William Berglund, Dayton, Ohio, assignors to Chadeloid Corporation, Dayton, Ohio, a corporation of Delaware.

As a new article of manufacture, a stain-filler-sealer containing substantially no oil vehicle comprising a solvent characterized by the presence of a glycol ether, acid organic dyestuff, diacetone alcohol, inert filler to the extent of between about 10 to 100 parts by weight of the composition, and the combination of an air drying phenolic modified alkyd resin and an air drying binder resin selected from the group consisting of unmodified alkyd resins of phthalic anhydride base, and urea-formaldehyde resin in solution in said solvent.

Process For Making Drying Oils

U.S. Patent 2,623,056. William E. Elwell, Berkeley, Calif., assignor to California Research Corporation, San Francisco, Calif., a corporation of Delaware.

A neutral monomeric ester of a cyclic polycarboxylic acid, having the formula $A(COOY)_n$ wherein A is the hydrocarbon-ring residue of said polycarboxylic acid, and Y is the radical of a monomeric polyester of a polyhydric alcohol having at least 3 hydroxyl groups, all of these groups but one having been esterified by monocarboxylic unsaturated fatty acids, said unesterified hydroxyl group being the only functional group in said monomeric polyester capable of reacting with a carboxyl group, and wherein n is an integer of at least 4.

Polymeric Titanium Compounds

U.S. Patent 2,621,193. Carl Martin Langkammerer, Wilmington, Del., assignor to E. I. duPont deNemours and Company, Wilmington, Del., a corporation of Delaware.

As a new organo-soluble polymeric titanium compound, the product obtained by reacting an organic ester of ortho-titanic acid, corresponding to the formula $Ti(OR)_4$ in which R is a hydrocarbon radical selected from the group consisting of alkyl, cycloalkyl, aryl, and aralkyl, with at least a half molar equivalent of an anhydrous aliphatic carboxylic acid per mol of said ester.

Onium Base Coatings

U.S. Patent 2,622,987. George L. Ratcliffe, Los Angeles, Calif., assignor to National Lead Company, Los Angeles, Calif., a corporation of New Jersey.

A paint, comprising a pigment base suspended in an organic paint vehicle, together with a suspending medium embodying a cation modified clay, originally exhibiting a substantial base-exchange capacity, in which the clay cation has been replaced by a substituted cation of the class of onium bases consisting of ammonium, phosphonium, sulfonium, arsonium, stibonium, oxonium and telluronium bases, and which forms a gel in the vehicle and has a substantial gel characteristic therein.

Iron Oxide Pigment

U.S. Patent 2,620,261. Thomas Toxby, Holte, Denmark, assignor to C. K. Williams & Co., East St. Louis, Ill., a corporation of Delaware.

A method for the production of hydrohematitic iron oxide pigments having a hexagonal rhombohedral crystal structure containing not more than 8% chemically combined water, in the form of dry powder of hues varying from orange to red comprising, forming an aqueous mass containing (1) brown precipitated ferric hydroxide and, in solution, both (2) a ferrous salt and (3) a catalyst which is an ionizable compound of a metal selected from the group consisting of zinc and copper, said catalyst being present in a ratio of at least one mol to 10 mols of ferrous salt present maintaining the mass at a temperature of at least 65° C. until a hydro-hematitic iron oxide of a hue within the said color range is obtained, separating the said oxide from the liquid of the mass containing the catalyst and removing the free surface moisture from the said oxide by drying, thereby directly providing a pigment of the indicated color without resort to roasting.

Zirconium Pigments

U. S. Patent 2,626,255. Warren Barnett Blumenthal, Niagara Falls, N. Y., assignor to National Lead Company, New York, N. Y., a corporation of New Jersey.

A dye pigment comprising the water insoluble reaction product of a water soluble zirconyl salt and an acid dye containing an acid group selected from the acid group consisting of carboxalate and sulfonate.

Wax and Silicone Polish

U. S. Patent 2,626,870. Henry H. Cooke and Dominick Russo, Elizabeth, N. J., assignors to Standard Oil Development Company, a corporation of Delaware.

An emulsion polishing composition of the oil in water type consisting essentially of a straight chain polydimethyl siloxane having a viscosity of no more than 500 centistokes at 25° C. in an amount of from about 0.001 to 5% by weight, a wax in an amount of about 1 to 5% by weight, an abrasive in an amount of about 5 to 15% by weight, an emulsifying agent of the bodying type in an amount of about 0.2 to 4% by weight, a hydro-carbon solvent for the wax in an amount of about from 3 to 25% by weight, a water soluble wetting agent selected from the group consisting of synthetic non-ionic and anionic wetting agents in an amount of less than 1% by weight and the balance water.

Stain Filler Sealer

U. S. Patent 2,628,947. George L. Denis-ton and Orion William Berglund, Dayton, Ohio, assignors to Chadeloid Corporation, Wilmington, Del., a corporation of Delaware.

As a new article of manufacture, stain-filler-sealer comprising acid organic dyestuff, an organic solvent for said dyestuff characterized by the presence of tetrahydrofurfuryl alcohol, diacetone alcohol, inert filler, pigment, an air-drying phthalic anhydride-glycerol resin in combination with a hardener resin comprising phenol modified phthalic anhydride-glycerol resin, to provide a resinous combination which imparts a sealing and hardening effect and reduces shrinkage of the composition upon application and drying.

Preparation of Partial Esters

U. S. Patent 2,628,967. Roland-Carlo Voegeli, Cointrin, Switzerland, assignor to The Givaudan Corporation, a corporation of New Jersey.

A process for preparing partial carboxylic acid esters of polyhydric alcohols, which comprises heating glycerol and a member selected from the group consisting of higher fatty acids and higher fatty acid polyesters at an elevated temperature, in the presence of at least one catalyst selected from the group consisting of metals having atomic numbers between 24 and 28, inclusive in Series 4 of the periodic table which are capable of possessing more than one valence in their compounds and the salts of said metals.

CALENDAR OF EVENTS

April 17-18. Joint Meeting of Houston and Dallas Paint and Varnish Production Club and Meeting of Southwestern Zone of NPVL Ass'n., Shamrock Hotel, Houston, Tex.

May 22-23. Spring Symposium of the Pacific Northwest Paint and Varnish Production Club. Multnomah Hotel, Portland, Ore.

June 4-6. 36th Annual Meeting of Chemical Institute of Canada. Prince Edward Hotel, Windsor, Ont.

Production Club Meetings

Baltimore, 2nd Friday, Park Plaza Hotel.

Chicago, 1st Monday, Furniture Mart.

C.D.I.C., 2nd Monday.
Cincinnati — Oct., Dec., Mar., May, Hotel Alms.
Dayton — Nov., Feb., April, Suttmillers.
Indianapolis — Sept., Claypoll Hotel.
Columbus — Jan., June, Fort Hayes Hotel.

Cleveland, 3rd Friday, Harvey Restaurant.

Dallas, 2nd Thursday, No Fixed Place.

Detroit, 4th Tuesday, Rackham Building.

Golden Gate, Last Monday, El Jardin Restaurant, San Francisco.

Houston, 2nd Tuesday, Seven Seas Restaurant.

Kansas City, 2nd Wednesday, Pickwick Hotel.

Los Angeles, 2nd Wednesday, Scully's Cafe.

Louisville, 3rd Wednesday, Seelbach Hotel.

Montreal, 1st Wednesday, Queen's Hotel.

New England, 3rd Thursday, Puritan Hotel, Boston.

New York, 1st Thursday, Building Trades Employers Assn.

Northwestern, 1st Friday, St. Paul Town and Country Club.

Pacific Northwest, Annual Meetings only.

Philadelphia, 3rd Wednesday, Engineer's Club.

Pittsburgh, 1st Monday, Fort Pitt Hotel.

St. Louis, 3rd Tuesday, Forest Park Hotel.

Southern, Annual Meetings Only.

Toronto, 3rd Monday, Diana Sweets, Ltd.

Western New York, 1st Monday, 40-8 Club, Buffalo.

Acid-Resistant Ultramarine

U. S. Patent 2,628,920. Frederick J. Schwahl, Hillside, N. J., assignor to American Cyanamid Company, New York, N. Y., a corporation of Maine.

As a new and useful composition of matter, pigment particles of an ultramarine substantially enveloped in a water-insoluble, substantially alkali-metal free, amorphous composition of dehydrated silicic acids, said particles displaying, when subjected to a beam of X-rays in an X-ray diffraction apparatus, the X-ray diffraction pattern characteristic of ordinary untreated ultramarine and also displaying, when subjected to a beam of electrons in an electron diffraction apparatus, the residue of the electron diffraction pattern of said ordinary ultramarine, said residual pattern having not more than about 25% of the intensity of the electron diffraction pattern displayed by said ordinary ultramarine under the same conditions; said pigment being further characterized in that when one part thereof is heated in 100 parts of a 10% solution of $Al_2SO_4:18H_2O$ in water at 100°C. for 30 minutes, the residual tinctorial strength of the thus-heated ultramarine is more than about 25%.

Process for the preparation of an ultramarine of improved acid resistance which comprises (1) reacting ultramarine with a very dilute solution of a strong mineral acid to form an aqueous slurry of acid-treated ultramarine, the proportion of said mineral acid in said solution being the stoichiometrical equivalent of 2%-7% of sulfuric acid of the weight of said ultramarine; (2) heating said acid-treated ultramarine in aqueous medium to about 90°C. until evolution of hydrogen sulfide substantially ceases; (3) reacting the resulting ultramarine with an alkali metal silicate solution until the absorptive capacity of said ultramarine for alkali metal ions is substantially satisfied; (4) calcining said silicated ultramarine between about 350°C. and 800°C. until evolution of water from said silicated ultramarine substantially ceases; and (5) cooling said calcined ultramarine.

Sulfurized Fatty and Waxy Materials

U. S. Patent 2,629,721. Conrad J. Stande, Garden City, N. Y., assignor to N. I. Malmstrom & Company, Brooklyn, N. Y., a copartnership.

A process of making leaded sulfurized saponified degras which comprises heating wool grease to about 270° to 280°F. in the presence of about 10% caustic soda for about one hour, and the caustic soda being in a concentrated solution in a minimum amount of water, drying the hot reaction mixture by adding it to a lubricant oil and blowing with hot air at a temperature of about 285°F., about 100 to 125 parts of the reaction mixture being placed in about 75 parts of the mineral oil, then mixing with a slurry of about 23 parts of phosphorous pentasulfide and 25 parts of mineral oil and maintaining with stirring a temperature of 285° to 300°F. and then treating the thus sulfurized saponified wool grease with a solution of lead acetate at a temperature of about 200 to 212°F. and finally removing the acetic acid.

Synthetic Drying Oil

U. S. Patent 2,627,479. Lee Pritzker, Baltimore, Md.

The method of making a synthetic drying oil which comprises heating for at least one hour to reaction temperature of about 350 to 600°F. a tough, rubber-like, resilient, resin of petroleum long-chain unsaturated hydrocarbons produced by air blowing at 450 to 575°F. of the propane precipitated viscous material from propane dewaxed straight cylinder stock of paraffin base petroleum origin with a petroleum derived unsaturated liquid polymer obtained as a by-product in the cracking of petroleum tars in the form of a heat-reactive, aromatic-type olefinic hydrocarbon having a specific gravity 1.0-1.02, viscosity S. U. S. at 210°F. of 100-300, flash point 200°F. minimum, iodine number (Wijs) of 190-200 the resin being the major constituent of the combination with the polymer, the amount of polymer being sufficient to give drying characteristics to the heat reaction product of resin and polymer.

Rust Preventive

U. S. Patent 2,627,474. Joseph W. Romberg, Port Neches, Tex., assignor to The Texas Company, New York, N. Y., a corporation of Delaware.

A quick drying liquid composition adapted for application to metal surfaces to prevent rusting that comprises as essential ingredients about 40-50% by weight of a waxate consisting of a wax-soap composition composed of metallic soaps of the acids of oxidized paraffin wax and the associated non-acid constituents thereof, about 5% by weight of petroleum cylinder stock as plasticizer, about 45-55% by weight of naphtha and a relatively minute portion of the order of 0.001-0.1% by weight of liquid dimethyl silicone effective to decrease the drying time of the composition when applied to metal surfaces, said composition being adapted upon the volatization of the naphtha to leave a non-tacky, adherent film on the metal surface.

Fire-Retardant Paint

U. S. Patent 2,627,475. Ralph W. Craig, Painesville, Ohio, assignor to Diamond Alkali Company, Cleveland, Ohio, a corporation of Delaware.

A fire-retardant paint composition containing as its essential fire-retardant ingredients a solid, highly chlorinated aliphatic compound having more than 8 carbon atoms and containing between 63% and 80% of chemically combined chlorine, and barium sulfate, said highly chlorinated aliphatic compound amounting to at least 25% by weight of the total of the vehicle solids of said paint, said barium sulfate amounting to from 30%-50% by weight of the total pigment present in said paint, and the ratio of the volume of the total of said pigment to the volume of the total of said vehicle solids being substantially within the range of 1.25:1 to 2:1.

Coating Composition

U. S. Patent 2,628,208. Serge A. Loukomsky, Hartford, Conn.

A coating composition for a normally solid hydrocarbon polymer surface consisting essentially of a mixed solvent medium having a higher boiling fraction and a lower boiling fraction, a first resin dispersed in particulate form in said medium, and a second resin in solution in said medium; said first resin being compatible with the normally solid hydrocarbon polymer surface to be coated, and soluble in the higher boiling fraction of said medium at an elevated temperature, said second resin being incompatible with the normally solid hydrocarbon polymer surface to be coated, insoluble in the higher boiling fraction of said medium at any temperature, and soluble in said medium and in the lower boiling fraction thereof at a temperature substantially below that requisite to solution of said first resin in the higher boiling fraction of said medium, the boiling point differential between said higher boiling fraction and said lower boiling fraction of the solvent medium being at least about 10 centigrade degrees, said first resin being polyethylene having a molecular weight of at least 10,000 and a particle size of about 0.2 to about 5.0 microns; said second resin being selected from the group consisting of the oil, fat and hydrocarbon insoluble vinyl resins and chlorinated rubber; the weight ratio of said second resin to said first resin falling within the range of about 1:1.2 to 1:5.

Light Stable Polymers

U. S. Patent 2,628,951. George C. Claver, Jr., South Hadley, Mass., assignor to Monsanto Chemical Company, St. Louis, Mo., a corporation of Delaware.

A light-stable composition comprising 100 parts of a polymer of an aromatic compound containing ethylenic unsaturation in a side chain and from 0.001 to 0.1 part of an amine oxide.

abstracts

Pigmetation of Latex Paints

Melsheimer, L. A. and Hoback, Walter H., Calco Chem. Div., American Cyanamid Co., Bound Brook, N.J. Presented before Div. of Paint, Varnish and Plastics Chemistry, ACS, Atlantic City, Sept. 14-19, 1952.

Pigmentation of latex paints, which are O/W emulsions systems of high complexity, requires that the pigments be selected from those that are inherently resistant to the alkalinity of the vehicle and surfaces to be painted. Special requirements of low chemical reactivity, low electrolyte content, and neutral to alkaline pH must be met. For most purposes, the more lightfast pigments are preferred.

Pigments that are poorly dispersed, or show strong flocculation tendency, fail to produce maximum pigmenting or coloring efficiency and may cause streaking and poor color uniformity.

The external or continuous phase generally consists of an alkali-dispersed colloid such as casein with or without other surface active agents, sequestering agents, etc. Certain anionic agents have proved effective as aids in pigment wetting and, in combination with ammonium caseinate, have shown minimum liquid requirement values in absorption titrations. Selection of aqueous vehicle constituents to yield low absorption values has given the best pigment dispersion and greatest coloring efficiency. Casein has been found to be an excellent dispersant not only for extenders and inorganic pigments, but for the organic toner pigments. It improves the dispersion properties of the water phase and appears to function well as a protective colloid and stabilizer, as well as thickener. Pigment mixtures, including both organic toners and inorganic white and extender pigments, must be dispersed in a manner to simulate the anionically dispersed latex and must be mutually compatible with each other and with the latex for maximum color efficiency and pigment stability.

The dispersed film-forming binder and pigments are all carried by the aqueous phase, which also carries the colloidally dispersed thickener. Overcrowding at any stage of manufacture is likely to cause flocculation or agglomeration, so that a careful procedure carried out in a logical sequence must be followed in dispersing the pigments and blending in the other ingredients to produce the final paint.

Synthetic Latex in Scrub-Resistant Coatings

Stilbert, E. K. and Cummings, I. J., The Dow Chemical Co., Midland, Mich. Presented before Div. of Paint, Varnish and Plastics Chemistry, ACS, Atlantic City, Sept. 14-19, 1952.

An intumescent fire-retardent coating composition is described. Some inherent disadvantages of this type of fire-retardent coating are lack of wet scrub-resistance and excessive brittleness. The properties studied were degree of intumescence and wet scrub-resistance of the oven-dried coating film.

Out of ten different types of synthetic latexes evaluated, a vinyl chloride-vinylidene chloride latex, Dow Latex 744-B, was the most satisfactory latex modifier for the intumescent composition. The addition of minor amounts of the plasticized latex to the intumescent coating composition re-

sulted in a marked improvement in flexibility and wet scrub-resistance with a minor loss in degree of intumescence. The compositions discussed did not have sufficient wet stability for consideration of one-package systems. Relatively short drying times and elevated temperatures were utilized to indicate the feasibility of the latex modified intumescent coating compositions for factory applications. Low density fiber insulating board was utilized for coating application of the latex-modified intumescent compositions. The inclusion of a plasticizer with the latex is necessary to attain maximum latex film properties. Useful pigmented coating compositions, however, were obtained over a range of 0 to 20% plasticizer based on latex solids. Suggested optimum coating weights as well as optimum coating compositions were proposed for mill application to low density fiber insulating board.

Mechanism of Film Formation Of Latex Paints

Henson, W. A., Taber, D. A., and Bradford, E. B., Dow Chemical Co., Midland, Mich. Presented before Div. of Paint, Varnish and Plastics Chemistry, ACS, Atlantic City, Sept. 14-19, 1952.

Because of the introduction of latex paints into the family of commercial paints, there is an increasing interest in the manner by which these films are formed. As a point of introduction a typical latex paint formulation is given and compared with a typical oil paint recipe. A schematic illustration of a highly magnified segment of paint is also given.

The mechanism of film formation is then subdivided into two steps:

Loss of volatile vehicle (water). The time required for this step is dependent upon the amount of water present and upon other external factors affecting the evaporation rate of water. During this step the paint passes through an irreversible point, prior to which the paint is redispersible upon the addition of water but following which the paint is not redispersible. This point occurs long before all the water is evaporated. A photograph is presented showing a series of paint samples before and after the irreversible point.

Fusion or knitting together of the paint film. A series of electron photomicrographs is shown picturing the formation of clear vehicle films and also pigmented paint films. This step is controlled by a number of physical factors including particle size of the latex and the compressive modulus of the synthetic resin in the latex and is enhanced by conditions favoring the continuous removal of water during the initial stages of fusion.

Water Penetration of Emulsion Polymer Films

Brown, George L., Rohm & Haas Co., Philadelphia, Pa. Presented before the Div. of Paint, Varnish and Plastics Chemistry, ACS, Atlantic City, Sept. 14-19, 1952.

Penetration of water into films deposited from emulsions leads to softening, whitening, and loss of adhesion.

The mechanism of penetration proposed is: The driving force is provided by the difference between the vapor pressure of the film and the vapor pressure to which the film is exposed. The opposing force is the resistance of the film to expansion to accommodate the water "cells", and thus is a function of the elastic modulus of the film.

Capillary penetration is unimportant in a well-formed film, for no water is absorbed from a saturated salt solution.

Plasticizing Synthetic Latex

Dillon, R. E. and Bradford, E. B., Dow Chemical Co., Midland, Mich. Presented before Div. of Paint, Varnish and Plastics Chemistry, ACS, Atlantic City, Sept. 14-19, 1952.

A plasticizer dispersed in a synthetic latex first forms an emulsion. As the system ages, the plasticizer diffuses from emulsion droplets through the water and is absorbed by the polymer. Plasticizers differ greatly in the speed of this process. Some plasticize the polymer so that films may be cast almost immediately after addition, while others require as long as 48 days to plasticize the latex. The action of several plasticizers on molded pieces of polymer is compared with their action in the latex.

Electron micrographs are presented showing the effect of aging the plasticized latex on the surface of a cast

film and also on the individual particles.

The addition of small amounts of good swelling agents or solvents increases the rate of absorption of plasticizer by the polymer. Data obtained by centrifuging plasticized latexes show that this method also reduces the aging time, thus permitting the formation of cast films without a long aging period.

Behavior of Externally Plasticized Latices in Water

Green, Russel B., Monsanto Chemical Co., Springfield, Mass. Presented before the Div. of Paint, Varnish, and Plastics Chemistry, ACS, Atlantic City, Sept. 14-19, 1952.

Externally plasticized latices are defined as aqueous dispersed non-film-forming resins which have been compounded with plasticizer to yield an emulsion which will form useful coherent films when dried. Both the dispersed resin and plasticizer must meet essential requirements before successful compounding can be realized. Resin requirements include solubility and compatibility with plasticizer, controlled particle size, and low monomer content. The plasticizer must be a solvent for the resin, liquid and mobile at operating temperatures, and emulsifiable. Properties desirable of both resin and plasticizer are good color, nontoxicity, freedom from odor, and chemical inertness.

The procedure for externally plasticizing an aqueous dispersion resin involves the emulsification of a suitable plasticizer, followed by blending with the aqueous resin dispersion to arrive at an emulsion with plasticizer and resin united in the internal phase. Emulsification of the plasticizer can readily be accomplished by simple stirring of the plasticizer into a prepared solution of protective colloid. The aqueous dispersion resin may be any one of a number of various chemical types, provided certain basic requirements are present in the resin. Advantages of post-compounded laticies are flexibility in formulation and costs for selected end applications.

Protein Usage Affecting Viscosity of Latex Paints

Bixler, Dean, A., Buckeye Cotton Oil Co., Cincinnati, Ohio. Presented before the Div. of Paint, Varnish and Plastics Chemistry, ACS, Atlantic City, Sept. 14-19, 1952.

In the complicated system that is a latex paint, an attempt has been made to isolate one ingredient, protein, in a single formulation and study the effects of protein on viscosity stability.

Stable paints can be made with up to about 2% of protein, which gives generally adequate thickening. A minimum amount of ammonia is a satisfactory dispersant. The temperature of the dispersion and its concentration had no effect on stability. Use of old, unpreserved protein or pigment dispersions lessened the chances for a stable paint. The importance of cleanliness and proper preservation is emphasized.

The non-Newtonian character of latex paints makes it necessary that careful standardization be maintained when comparing viscosities of latex paints.

Determination of Mole Ratio of Urea to Formaldehyde

P. P. Grad, R. J. Dunn, Borden Co., Chemical Div., Bainbridge, N.Y. Presented at the Div. of Paint, Varnish and Plastics Chemistry of the ACS Meeting on Sept. 15, 1952 in Atlantic City, N.J.

A critical review of existing methods of analysis for the total urea and formaldehyde contents of urea-formaldehyde resins is presented. The resulting need for accurate and precise methods for the determination of these basic constitutents is demonstrated. Details of the techniques and experimental conditions of methods of analysis are offered. Their accuracy and precision are demonstrated by the tabulation of a series of experimental data resulting from the analysis of a variety of industrial urea-formaldehyde resins.

The new method for the determination of total formaldehyde is applicable for resins in all states of condensation. The modified total urea analysis is suitable for all but fully cured urea-formaldehyde resins.

When correlated with the total nitrogen content, the results provide an estimation as to the amount of nonurea nitrogenous modifiers present.

Freeze-Thaw Studies on Some Polymers for Latex

DiGioia, F. A. and Nelson, R. E., General Laetx & Chemical Corp., Cambridge, Mass. Presented before Div. of Paint, Varnish and Plastics Chemistry, ACS, Atlantic City, Sept. 14-19, 1952.

Aqueous latex emulsions are frequently irreversibly coagulated by freezing. This paper reports a study on several polymers being used or proposed for use in latex paints as far as freeze-thaw properties are concerned. The effect of particle size, emulsifying agents used in the latex polymerization, as well as variations in monomers utilized, are reported. It has been found that a latex which in itself has excellent freeze-thaw properties may be altered in this respect by compounding for paint. The effect of varying the freeze-thaw method has also been studied and observations are reported. Some suggestions regarding compounding to obtain good freeze-thaw in a latex paint are given.

Formulation of Fire-Retardant Paints

Murray, T. M., Liberti, Felix, and Allen, Austin O., Vita-Var Corp., Newark, N. J. Presented at ACS, Div. of Paint, Plastics and Printing Ink Chemistry, March 15-19, 1953, at Los Angeles, Calif.

An effective fire-retardant paint for use on burnable substrate must have the following properties:

The dried film of the paint should be incombustible. The film should liberate heavy inert or noncombustible gases, which tend to smother flame. The film should contain materials which would give a glasslike flux by low melting organic compounds which tend to seal the underlying surface from flame. A cellular mat should be formed, which serves to insulate the underlying surface. The paint film should be reasonably insoluble in water, so that interior paints will withstand washings and exterior paints withstand weather conditions.

The work has covered the selection of vehicles and pigments to give the above characteristics and at the same time produce practical protective and decorative coatings for interior and exterior use.

Considerable thought was given to the evaluation of various formulations. Federal Specification TT-P-141 was adhered to in so far as possible for test methods. The New York Production Club cabinet, with modifications by the Engineer Research and Development Laboratories, was utilized for the fire-retardant evaluations and a leaching test was introduced to determine the water solubility of the films.

The work shows formulations and tabulated results of several formulations.

History of Water-Thinned Paints

H. A. Scholz, United States Gypsum Co., Chicago, Ill. Presented at the Div. of Paint, Varnish and Plastics Chemistry of ACS Meeting on Sept. 16, 1952 in Atlantic City, N. J.

The first paints made were water thinned. The evolution is sketched from the mud daubings of the cave men through the distemper wall paintings of the Dynasty Egyptians, the frescoes of the Romans and medieval Italians, and the milk and curd paints of the ancient Hebrews to the whitewash of colonial and early United States days.

The whitewash developed into bonding portland cement paints in one branch and casein powder paints in another, as dry casein became a commercial product. Casein paints were not important until the development about 25 years ago of paste paints with their superior application and hiding qualities. Resin emulsion paints provided increased washing qualities while retaining most of the good qualities of the casein paste paints. The latest in the water-thinned paint line are the latex paints in which the copolymers and polymers of butadiene, styrene, vinyl vinylidene, and others serve as binders. They are selling more widely than any previous water-thinned paints and seem destined to play an important role in the paint industry.

Industry Increasing Efforts To Eliminate Offensive Plant Odors

A skunk is a good animal until it makes use of its famous odor. Similarly the bounties of commercial developments have often been marred where offensive industrial odors have distracted workers or community dwellers.

In some areas, industrial odors were such a public nuisance that court action was taken against the offending company.

However in recent years industry has been paying more attention to the problem, realizing that offensive odors can be controlled effectively and economically, according to James C. Scully, general manager of Airkem, Inc., producers of chlorophyll counteractants and reducers.

He cited his firm's 25 per cent increase in sales between 1951 and 1952 as evidence.

Mr. Scully adds that much has been done to neutralize objectionable odors in city sewage systems and in tall oil, synthetic and reclaimed rubber, paint, varnish and fat rendering plants, among other.

"However, this does not mean that the odor problem is completely licked," Mr. Scully said, "More research for new counteractants and special reductors for specific industrial odors is continuing."

METHYL GLUCOSIDE

(From page 25)

as pentaerythritol, be used in conjunction with methyl glucoside to facilitate getting a lower acid number, particularly with tall oils that run in high rosin acids (40 to 50%).

It has been found advisable from the standpoint of color of the final products to heat the tall oil, the methyl glucoside and a litharge catalyst at 392°F for an hour, then at 445°F for an hour and finally at 535°F until the desired acid number is obtained. Rapid stirring and carbon dioxide sparging are also beneficial. When employed along with methyl glucoside the other polyol should be added just before raising the temperature to 535°F or upon reaching it.

Certain acid refined tall oils have given some trouble in the esterification of methyl glucoside. However, if such tall oils are heated for 5 to 10 minutes with a few tenths per cent barium oxide before adding the methyl glucoside, undesirable side reactions are prevented.

Tall oils esterfied with (mixtures of methyl glucoside and pentaerythritol 80/20 and 60/40 by weight) have higher viscosities and dry more rapidly to harder films than esters based on straight pentaerythritol. Although the esters from the mixed polyols are slightly darker than those of pentaerythritol, actually the difference is only noticeable with pale refined tall oils.

Summary

For the paint and varnish manufacturer, a new polyol — methyl glucoside — has been developed. It is a low priced, white crystalline powder produced from an abundant sugar. Nonhygroscopic methyl glucoside having four available hydroxyls is a promising raw material for the esterfication of fatty acids to give synthetic drying oils, varnishes, and tall oil esters. Used alone and with other polyols, it imparts the advantageous properties of higher viscosity, rapid bodying, and faster drying to hard, tough, adhesive films.

TECHNICAL Bulletins

SORBITOL

Twenty-four page booklet entitled "The Sorbitol Story" presents application data and chemical characteristics on sorbitol as used in many process industries such as textile, food, drug, paint, etc. Tables, charts and text define the composition and properties of various sorbitol products. It also discusses their uses in formulations employed by the various chemical process industries. Atlas Powder Co.. Wilmington 99, Del.

HYDROXYSTEARIC ACID, HYDROGENATED CASTOR

Booklet describes 12-hydroxystearic acid and hydrogenated castor oil. These products have been respectively designated Hyfac 442 and Hyfac 2142. The descriptive booklet contains the physical and chemical properties of these products together with specifications and suggested uses. A complete bibliography is also included. Emery Industries, Inc., Dept. 5, Carew Tower, Cincinnati 2, Ohio.

RESIN GUIDE

The fifth issue of Resin Guide is available from the Coating Resins Dept. of the American Cyanamid Co., 30 Rockefeller Plaza, New York 20, N. Y. Many new products are included in this guide such as Beetle Resin 220-8, Rezyl Resin 405-18, Rezyl Resin 406-22, and Rezyl Resin 874-22.

TRIOXANE

Data sheet describes the physical, chemical properties and uses of trioxane, a crystalline form of formaldehyde.

This chemical offers applications in the preparation of organic intermediates and resins. It may be used in conjunction with polar and non-polar solvents to enhance their solubilizing properties. Celanese Corp. of America, Chemical Div., 180 Madison Ave., New York 16, N. Y.

SEQUESTRENES

Fifty-four page booklet presents complete information on the various sequestrenes offered by the Alrose Chemical Co., Providence 1, R. I. Physical and chemical properties, analytical procedures, and physiological properties are covered in detail. Specific uses in various process industries are also included. Of particular interest to the paint industry, is the use of sequestrene in latex base paints. According to the manufacturer, sequestrene improves the color stability of polystyrene, styrene-butadiene, polyvinyl chloride and polyacrylate resins.

AZELAIC ACID

This technical bulletin on a superior grade of azelaic acid, a C_9, saturated, diabasic acid, which is soon to be available, may be obtained on request. Contained in this bulletin is a complete description of Emery 901-R azelaic acid, including tentative specifications, typical characteristics, and composition data. Typical reactions are also included.

For a copy of this bulletin titled, "Emery 901-R Azelaic Acid", write to: Emery Industries, Inc., Dept. 5, Carew Tower, Cincinnati 2, Ohio.

PLATY MICA IN VINYL PRIMERS, VINYL-ALKYDS

Technical Bulletin No. 13 issued by the Wet Ground Mica Association, Inc., 420 Lexington Ave. is concerned with an investigation of the effect of platy mica extender on the behavior of a paint system comprised of vinyl primers and a vinyl-alkyd paint. Included in this four page bulletin are paint formulations used in the investigation, salt-fog exposure tests on the paint systems, and results of salt-fog and printing series for various exposure times.

DIESEL ENGINES

Booklet deals with the operation of diesel engines and compares it with the gasoline engine. It also discusses the 2-cycle and 4-cycle types of diesels; explains their operation in simple pictures and words; and reports latest advancements in modern diesel engine design. "What You Should Know About Diesel Engines" is available from the P&H Diesel Div., Harnischfeger Corp., Crystal Lake, Ill.

COMPOSITION METHOD FOR STEARIC ACID

Emery Industries, Inc., have developed a simplified procedure for determining the composition of commercial stearic and palmitic acids.

Based on titer and iodine value tests only, the method is claimed to provide an accuracy within 1½—%. This is compared to an accuracy of 1% normally obtained by more complex fractional distillation methods.

The test procedure and necessary curves are contained in a technical bulletin titled, "Rapid Composition Analysis of Commercial Stearic Acids", and is available on request from: Emery Industries, Inc., Dept. 5, Carew Tower, Cincinnati 2, Ohio.

SOYBEAN CROP

Latest authoritative information on the soybean crop and industry is presented in the 1953 edition of the Soybean Blue Book, published by the American Soybean Association here, and just off the press. The book comprises 160 pages and cover.

Assembled for quick reference are the latest available statistics on production, prices and utilization of soybeans, meal and oil, according to Geo. M. Strayer, secretary-treasurer. A number of new tables and graphs are included for the first time this year. There are directories of soybean processors, oil refiners, and manufacturers using soy products in their operations, as well as firms offering their services and products to the soybean industry.

The book is available at $3 per copy from the American Soybean Association, Hudson, Iowa.

BARREL & DRUM MIXER

Two page bulletin describes barrel and drum tumbling mixer and Model S top entering center position mixer. Specifications are also given. The Cleveland Mixer 3236 W. 33rd St., Cleveland, Ohio.

PAINT BONDING

A 12-page folder entitled "Methods for Comparative Evaluation of Paint Bonding" is available for 35 cents from the Office of Information Services, New York University, University Heights, New York City 53.

The paper, which was prepared by Max Kronstein, Louis F. DeLong, and Alfred W. Norman of the Research Division of the College of Engineering, describes methods used for comparing the paint-bonding characteristics of four types of phosphate pre-treatments on steel.

Reprinted from the December 1952 issue of "Paint and Varnish Production," the article discusses tests for profile, stripping weight, and actual paint-bonding effect after prolonged salt-fog exposure,

and evaluates the results obtained for each of the pre-treatments used. It is illustrated by charts and photographs.

SYNTHETIC CHEMICALS PRODUCTION

Estimates of production for 1955 and 1975 of synthetic organic chemicals, assembled from the five-volume report of the Materials Policy Commission (June 1952), are now available in booklet form.

The material has been assembled into 18 tables which compare estimated production and use figures for many chemicals and chemical groups in 1955 and 1975 to actual production and use figures in 1950. Products include coal tar crudes, benzene, naphthalene, cyclic intermediates, cresols and cresylic acids, phenol, phthalic anhydride, styrene, cyclic end products, petrochemical crudes, ethylene, acetylene, methane, medicinals, plastics and resin materials, and synthetic fibers. R. S. Aries & Associates, 400 Madison Ave., New York 17, N. Y.

BLACK PIGMENT DATA

Data sheet in chart form covers Witcoblak Hitone, Witcoblaks Nos. 11, 32, 50, 100, F-1, F-2 and F-3, and Witcolith No. 2. The sheet shows the color on the nigrometer scale, oil absorption, average particle size, approximate surface area, maximum moisture, fixed carbon, adsorbed volatile, specific gravity, weight per solid gallon, apparent density, tinting strength, sludge pH, ash content, per cent of benzol extract and whether or not it is available in pellet form.

The main fields of application for each black are also given. For copies, write to Witco Chemical Company, 260 Madison Avenue, New York 16, New York.

VISCOMETERS

Bulletin V1000E covers complete line of viscometers for industrial viscosity control. Indicating, recording and controlling equipment are described, and models that are available for various operating pressures and for applications requiring explosion-proof design are illustrated. General technical information is also included. Norcross Corp., 247 Newtonville Ave., Newton 58, Mass.

X-RAY ANALYSIS

8-page reprint of an article from a national trade magazine titled "Crystal Gazing with X-rays" is available from the Research and Control Instruments Division, North American Philips Company, Inc., 750 South Fulton Avenue, Mount Vernon, N. Y.

The booklet covers in considerable detail the historical development of X-ray analysis techniques and theory. Considerable space is devoted to the Fourier synthesis, strip methods, Bragg's analogs, X-RAC, Patterson Analysis and criteria for structure analysis.

FILTERING

Filtering, straining, washing, and screening by using metal wire screen and filter cloth are discussed in this eight page booklet issue by Multi-Metal Wire Cloth Co., 1350 Garrison Ave., New York 59, N. Y.

TESTING INSTRUMENTS

Forty-eight page, illustrated booklet presents various testing equipment used in the paint and petroleum laboratories together with price list of all items covered. Gardner Laboratory, Inc., Bethesda 14, Md.

PATENT LAW

Highlights of the newly revised U. S. patent law are discussed in the Winter 1953 edition of Chemonomics.

According to Chemonomics, points of revision include the definition of inventions, signature requirements, initial assumption as to validity, what constitutes patentable material, use of the "Patent Pending" mark, fee for appeals, and what constitutes contributory infringement.

Copies of the Winter 1953 edition of Chemonomics may be obtained free of charge by writing, on company letterhead, to R. S. Aries & Associates, 400 Madison Ave., New York 17, N. Y.

COLLOIDAL CARBON

Thirty page booklet of the reprint "Colloidal Carbon — Invaluable Soot", by C. W. Sweitzer covers the manufacture, properties and uses of colloidal carbon. Binney & Smith Co., 41 East 42nd St., New York 17, N. Y.

INDUSTRIAL CHEMICALS

Seven classes of Atlas industrial chemicals — sorbitol, surfactants, mannitol, polyester resins, fatty acids, plasticizers, and activated carbons are covered in this eight page catalog.

Of interest to paint manufacturers there is a section on sorbitol and related polyols which presents an analysis of economic factors (availability, price trends and purity standards) in addition to the necessary data on physical and chemical properties and description of the available forms. Pycal plasticizers for cloth coatings and industrial finishes are also discussed in this catalog. Atlas Powder Co., Wilmington 99, Del.

FORK TRUCKS

Twelve-page manual illustrates and describes entire line of platform and fork trucks and floor cranes. Elwell-Parker Electric Co., 4205 St., Clair Ave., Cleveland 3, Ohio.

TEMPERATURE CONTROLLERS

Data concerning electronic instruments for two position or proportional control is covered in 20-page catalog, "Electromax Temperature and Conductivity Controllers." This publication shows how three types of temperature controllers are used to regulate temperatures up to 1000 deg. F. It is also describes the conductivity controller that is being used to check condensate purity. Leeds & Northrup Co., 4934 Ave., Philadelphia 44, Pa.

PUMP

Specifications and uses of the Hypro 4000 Series Roller Pump are covered in this catalog. Construction details, and performance data are also included. Hypro Engineering, Inc., 404 No. Washington Ave., Minneapolis, Minn.

PAINT STRIPPING

Booklet provides instruction on paint stripping. Procedures for using 11 types of strippers offered by this firm in stripping finishes from all metals. Octagon Process, Inc., 15 Bank St., Staten Island 1, N. Y.

HANDLING EQUIP. CHART

Handling equipment reference chart describes full line of firms materials handling equipment. Fifty illustrations of materials handling equipment are classified into categories of package handling, bulk handling, roller & wheel conveyor, monorail, storage equipment, power and hand trucks, truck accessories, cranes and hoists, and chain and cable conveyors. Kornylak Engineering Corp., Jersey City 4, N. J.

PRODUCTION CLUBS

(*From page 44*)

the use of rare metals as driers.

Mr. Gardner said that despite theories to the contrary, rare earth metals have been made to function as driers. He added that "a solution of rare earth napthenate consisting of 50 per cent cerium and 50 per cent lanthanum gave startling results in white refrigeration enamel." Other rare earths are praseodymium and zirconium.

Field tests, Mr. Gardner continued, on epon resins, styrenated alkyds, silicones and everyday oleoresinous baking alkyds confirmed company laboratory tests of cleaner tougher, better adhering film.

In discussing additives for the paint industry, Mr. Gardner said the new odorless vehicles and paints have added importance to hexogen driers, which are essentially petroleum solvent solutions of metallic salts of 2-ethyl hexoid acid, a man-made product.

Los Angeles

The regular monthly meeting was held March 11, at Scully's Restaurant.

Speaker of the evening, Dr. W. H. Madson, Sales Service Division Head, White Pigments Department of the DuPont Company, who talked on the *Effects of Small Additions of Six Tinting Colors to White Paints and their effects on the Hiding Power of Paints.*

Mr. Madson's illustrations showed that there is a very little change in the actual hiding power, and the difference seen by various individuals are due to shifts in eye sensitivity of those particular individuals.

Contrast ratio charts and spectro photometer determinations were used by Dr. Madson.

A special meeting was held on March 17, by the Club in conjunction with the Paint, Plastic and Printing Ink Division of the American Chemical Society.

Clyde Smith gave on a talk on the history of the paint industry in the West.

Baltimore

The regular monthly meeting was held March 13th at the Park Plaza Hotel.

The committee studying the use of Soya Lecithin in paints, reported the work so far has been to compile literature on the subject. After screening of material, a program of experiments will be presented.

Fire-Retardant paints are also being studied by the club. A series of test paints have been made up and com-

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FORUM ON LATEX PAINTS

(*From page 29*)

tance properties, and good adhesion on most types of surfaces.

19. Is the formulation of polyvinyl acetate primer-sealer to be used as an undercoat for latex paints different from the formulation where the top coat is an oil-base paint?

No different formulation is required.

20. What would be the advantages of gloss latex paints over the oil base types?

Both would be essentially the same.

21. Is it possible to use latex primers or latex paints over wood surfaces without raising the grain or staining?

Yes, this is dependent on the type of wood used and the length of aging.

22. Will modification of latex paints with alkyd increase the adhesion of the system to smooth surfaces?

Yes, but preparing the surface, just as in any application, may be necessary to get best results.

23. What will prevent the rusting of nailheads when employing latex-base paint, especially in humid weather?

Seal off nailheads with shellac.

24. Can rubber latex systems be used with water soluble urea resin as in baked finishes?

No. The draw back of such a system is that the water-soluble urea resin are acid catalyzed and this acid condition will be detrimental to the latex emulsion. Also, the question of compatibility of these two resins must be considered.

25. Is it possible to reduce the set time of latex paints?

Yes, add water soluble materials.

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parative tests will soon be evaluated.

Dr. Ira Wilbur reported that the Educational Committee was investigating the possibility of starting a paint course in the Baltimore City Junior College.

Speaker of the evening was Dr. George Waters of the Shell Oil Company, who spoke on *Paint Thinners from Petroleum.*

Dr. Water covered all type thinners from the widely used "Mineral Spirits" to the new odorless types of solvent.

With the emphasis being stressed on Compatability, Volatility and Odor, Dr. Waters presented charts showing the various bases of hydrocarbon thinners. The advantages and limitations of each were described.

The trend toward odorless thinner for certain type paints has caused some concessions to be made in compatability, volatility and even economy. Little doubt was expressed that further research and development would overcome the first two ills, yet little hope in the near future is expected from the standpoint of economy when substituting odorless solvents for regular grades in paint formulation.

In the question and answer program that followed, Dr. Waters explained that to a certain degree, some of the increased viscosity caused by odorless thinner substitutions was actually due to the higher viscosity of the solvent itself, a fact little realized.

The fact that the solvent was odorless was not considered to be a real hazard, because of its non-toxic nature.

The possibility of obtaining an odorless solvent for industrial type protective coatings is in the development stage and may not be too long in making its appearance.

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Shell Oil's Benzene & Toluene Houston Plant Begins Operation

An integrated "platforming" and aromatics extractive distillation plant, constructed at a cost of more than a million dollars, has been put "on stream" at its Houston refinery by the Shell Oil Company.

According to Shell, the plant is expected to add about 10 per cent to the domestic output of benezene, plus greatly increasing the volume of toluene.

Toluene is an ingredient used in enamels and inks, and in many other products.

Yearly output, the company said, will exceed 19 million gallons of benzene and 33 million gallons of toluene.

The installation, said to be the largest of its kind in operation in the country, uses an extractive distillation process developed by the company.

ADVERTISER'S INDEX

when you use
HYDRITE FLAT

HYDRITE FLAT is a new pigment-extender that is giving excellent results in latex emulsion paints, particularly. It is an inert hydrated aluminum silicate that permits high pigment volume concentration, and maintains good film integrity.

The basic material is carefully selected and processed to provide optimum balance between two important qualities — flatness and dry hide. It has unusual dispersibility and stability in suspension.

CHEMICAL PROPERTIES: Non-reactive toward either acids or alkalies. Controlled low soluble salts.

COLLOIDAL PROPERTIES: Readily deflocculated by common dispersing agents, e.g., caseinates, polymerized phosphates, etc. Compatible with both aqueous and non-aqueous vehicles.

Send for detailed technical bulletin and sample for test.

GEORGIA KAOLIN COMPANY

433 North Broad Street, Elizabeth, N. J.

HYDRITE FLAT